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ABSTRACT

In this monograph the author considers the basic concepts of the social dimensions of scholastic ability and reviews some of the more salient findings of research that can be brought to bear on the problem of equality of educational oppoutunity. Emphasis is placed on how access to school and school attainments are related to social background. Chapter 1 is an attempt to clarify what is meant by equality of educational opportunity. Three different stages in the development of this concept are distinguished and certain inherent incompatibilities are brought out. Chapter 2 sets out to show that the concept of ability has to be conceived of in a sociological and not in an individual -psychological context. In a comprehensive review of the research on the reserves of talent conducted in Europe and the United States, Sweden is presented as an illustrative case of how the methodology in this particular area of study has developed. Chapter 4 demonstrates how various, mainly structural, features of the formal educational system affect educational opportunity. The author makes recommendations implicit in the findings reviewed and briefly discusses strategies by which they might be implemented. (Author/SHM)

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SOCIAL BACKGROUND AND EDUCATIONAL CAREER

Research perspectives on Equality of Educational Opportunity

by Torsten HUSÉN

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
1972

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PREFACE

It is timely to review the crucial question of education and equity, for the vast growth of education in O.E.C.D. countries in the last two decades was largely due to the belief that, even if social and professional elites are a prerequisite of technologically and economically advanced societies, equal rights to education will provide individuals with equal chances to reach such positions.

However, the evidence gathered for the O.E.C.D. Conference on Policies for Education Growth in 1970 led to some disillusion over the extent to which more education leads to more equity: in fact, big increases in education in the 1950s and 1960s brought only marginal advances in equality of opportunity. New approaches to equality of educational opportunity must therefore be explored, and to this end CERI established a "strategy group" of policy-makers and research workers to examine the implications of the most recent research evidence. The following report by Professor Husén is one of the outcomes of this endeavour. Given his outstanding reputation as a scientist who has devoted much of his career to studying the relationships between education and equity, his conclusions will command widespread interest.

The central issue which emerges from Professor Husén's analysis is that the social background, education and working careers of individuals must be related in new ways in the society of the 1970s. If the destiny of all individuals is settled decisively by examinations in the education system at the age of 11 and 16, then education will be relatively powerless to overcome the advantages of parental and social-class background. In other words, educational opportunities must be spread over a wider span of life; must be seen as part of a continuing process of development of the individual involving work, education and leisure; and must engage the responsibilities of employers, both private and public, as well as the educational system as we understand it today. This is what is meant by a system of "recurrent education", which is now the subject of investigation by CERI.

The conclusion that compels itself is that education can play its role in equity in the future only if, beyond a period of basic education for all, new combinations of educational activity, work and leisure are developed which enable individuals to pursue their development, both in terms of income and social status, over much of their working life.

James R. Gass
Director,
Centre for Educational
Research and Innovation

INTRODUCTION

This book is about social dimensions of scholastic ability, which for many years has been a pervasive theme in my research. My first study of the "reserve of talent", using survey data for an almost complete age group of twenty-year-olds in Sweden, was published more than 25 years ago (Husén, 1946). As indicated later in this book, research pertaining to educational attainments and social background has cast some doubt on the concept of "reserve of talent" as this was understood in the 1940's. Under the impact of a growing interest among policy-makers in the utilisation of talent and in equality of educational opportunity, studies of the relationship between social background and educational attainment have become much more sophisticated - both theoretically and technically. Analyses of data from large-scale national and international surveys have made us aware of how closely related certain features of the formal educational systems, such as structural rigidity, diversity of programmes and selectivity, are to the stratification of society at large. Whereas research relevant to the problem of equality of educational opportunity focused until recently mainly on selection for academic secondary or university education, it is now being directed at the conditions during pre-school and primary school that account for differences later in the educational career.

The present monograph is a modest attempt to reconsider some of the basic concepts and to review some of the more salient findings of research that can be brought to bear on the problem of equality of educational opportunity. It does not pretend to cover the entire body of research relevant in this connection, for instance the enormous literature on the nature-nurture problem. As can be seen from the list of references, however, the coverage is extensive and, as far as O.E.C.D. publications are concerned, hopefully satisfactory. My main emphasis is on how access to school and school attainments are related to social background. It has not been my intention to deal with the host of intricate technical problems encountered in this field of

enquiry. The only exception is the presentation of the research on the reserve of talent, where an account of the technical aspects is part of the historical exposition of how this research evolved.

The first two chapters deal with the theoretical implications of the main theme of this book. Chapter 1 is an attempt to clarify what is meant by equality of educational opportunity. Three different stages in the development of this concept are distinguished and certain inherent "incompatibilities" are brought out. Chapter 2 sets out to show that the concept of ability has to be conceived of in a sociological and not an individual-psychological context. Chapter 3 is a comprehensive review of the research on the reserves of talent conducted in Europe and the United States. Sweden is presented as an illustrative case of how the methodology in this particular area of study has developed. Chapter 4 demonstrates how various, mainly structural, features of the formal educational system affect educational opportunity. Particular attention is given to the problem of the comprehensive versus the selective school, which has been - and in some countries still is - the prevailing structural problem in Western Europe. The social bias built into various grouping practices is pointed out. Additionally, selectivity in terms of drop-out and grade-repeating is related to social background. Educational attainments are seen against the conditions at home, with particular reference to parental support. Finally, Chapter 5 presents the conclusions and elaborates on some of the policy implications of the findings.

I have for some years been entertaining the idea of writing a book focusing on the above problems. This idea would most likely not have materialised if two promoting circumstances had not occurred. When I disclosed my idea to Mr. J.R. Gass, Director of the Centre for Educational Research and Innovation (C.E.R.I.), in O.E.C.D., he suggested that I should try to write a monograph for the Centre with the purpose of collating the relevant research that could provide a knowledge basis for policy in this particular area. During the spring semester of 1971, I was invited to the Ontario Institute for Studies in Education (O.I.S.E.) in Toronto as a Peter Sandiford Visiting Professor. This enabled me to get time to prepare the first draft of the major portion of the book.

I want to express my gratitude to Mr. Gass and Mr. D. Kallen of C.E.R.I., and to Mr. Ian Cox, who in various ways facilitated the preparation of this book, and to my colleagues at the O.I.S.E. who gave me a stimulating intellectual climate. I would particularly like to thank Professor Jan Loubser and his co-workers in the Department of Sociology in Education. Mr. Jocelyn Desroches and my daughter Görel Husén assisted me in preparing the bibliography.

Torsten HUSÉN

Chapter 1

EQUALITY AS AN OBJECTIVE OF EDUCATIONAL AND SOCIAL POLICY

1. EQUALITY AT THE STARTING POINT, IN TREATMENT, AND AS A FINAL GOAL

"Equality" has in recent years become one of the keywords in the policy debate on educational problems both at the national and the international level. "Equality of educational opportunity" (Chancengleichheit) has not always, however, been regarded as a goal in itself, but as a means in the long-range perspective of bringing about social equality. As will be shown later, the classical liberal concept of equality is that all individuals should be given the same opportunity to start their life career and not necessarily that it should ultimately bring about greater equality in terms of social and/or economic status. It would take us too far in this connection to spell out all the political and social implications of the concept of equality - let alone trace the history of the concept in modern social philosophy from the 18th century. Professor W. Sjöstrand of the University of Uppsala has recently (Sjöstrand, 1970 and 1971) launched an extensive historical research project dealing with equality and freedom as two basic issues in Western educational philosophy. The main focus of this book will be on equality of educational opportunity, what it means according to different social philosophies, and how it can be achieved. It will also present findings from empirical studies elucidating various aspects of the concept.

The first large-scale attempt to elucidate empirically the extent to which equality has or has not been achieved in a particular national educational system is presented in the so-called Coleman report (Coleman, et al., 1966). This extensive survey was initiated by the Civil Rights Act of 1964 in accordance with which the United States Commissioner of Education was requested to conduct a survey "concerning the lack of availability of equal

educational opportunities for individuals by reason of race, color, religion, or national origin in public educational institutions at all levels in the United States" (op. cit., p. 3). The survey set out mainly to elucidate how far the schools offer equal educational opportunities in terms of other criteria (other than segregation) which are regarded as good indicators of educational quality. (ib.). Some of these criteria were quite tangible, such as libraries, textbooks, laboratories and the like. Others, such as curriculum offerings, grouping practices and methods of instruction, were less so. Some, finally, were rather elusive, such as teacher competence and teacher attitudes.

When analysing the concept of equality of educational opportunity, the crucial point is what should be meant not only by "equality" but also by "opportunity". In this context we shall confine ourselves chiefly to discussing "opportunity", but certain aspects of "equality" in the educational context ought to be spelled out briefly. From the point of view of the individual, "equality" can be conceived of in three ways: (1) as a starting point; (2) as a treatment; and (3) as a final goal - or as a combination of these three.

We can think of equality as a state when all individuals start their educational career, at least their formal school career, on an equal footing. From the genetic point of view they evidently do not; but we can, at least theoretically, think of a state of affairs when all children are given exactly the same living conditions from the day of their birth. The difficult aspect of this is, of course, that they emanate from parents differently equipped genetically and therefore from the outset they are subjected to different treatments.

Secondly, equality can be thought of as applied to treatment. Everybody, irrespective of his genetic equipment and social origin, could be thought to be treated equally in various ways. In the first place, everybody could be equal in law. The welfare policy could be framed to guarantee everybody a minimum income or subsistence allowance. A unitary system of pre-school or regular school education could take care of all the children alike, etc. Evidently, and this is a common experience both in capitalist and socialist economies, such a system does not necessarily lead to a complete and not even to an increased equalisation among adults. When Premier Khrushchev introduced the Education Act of 1958 to the Supreme Soviet he pointed out that at the institutions of

higher learning in Moscow the majority of the students came from families belonging to the employees and the intelligentsia. Only 30 to 40 per cent came from peasant or worker families (Conant, 1959). In Sweden, welfare policy, including among other things child allowances and the introduction of a unitary basic school and a system of upper and post-secondary education with a student aid and tuition-free system, has by no means levelled out the differences between working-class and middle-upper-class children in educational participation (O.E.C.D., 1971).

Finally, equality of educational opportunity could be regarded as a goal or a set of guideposts in the sense that framing and implementation of educational policy should introduce measures that will contribute to an increased equalisation in educational participation and even more so in educational achievement. This, in its turn, will lead to a greater socio-economic equalisation in terms of economic status, participation in decision-making processes that concern all citizens and so on.

In an article that spells out some of the implications of his big survey, Coleman (1966) raises the question of whether equality means that one wants to have equal schools (i.e. equal treatment) or equal students. He points out that his survey had mainly focused on what comes out of education in terms of student achievement in areas such as reading and arithmetic - skills that are important for success not only in further schooling but also on the labour market. This, of course, does not permit any absolute judgment about the real levels of equality or inequality of the schools the students are attending, because more of the individual differences in achievement are accounted for by their home and peer environment than by the school. However, what matters to the student "is not how 'equal' his school is, but rather whether he is equipped at the end of school to compete on an equal basis with others, whatever his social origins."(op. cit., p. 71 f.). Schools "are successful only insofar as they reduce the dependence of a child's opportunities upon his social origins.. Thus, equality of educational opportunity implies, not merely 'equal' schools, but equally effective schools, whose influences will overcome the differences in starting point of children from different social groups." (op. cit., p. 72.) This implies differential pedagogical treatment.

2. MEASURES OF ENVIRONMENT AND OPPORTUNITY

The analysis below of the various conceptions of equality of educational opportunity (see p. 22 et seq.) imply different, or partly different, key independent variables that can be measured with various degrees of success. The dependent criterion variable is "opportunity", which can be represented by some measure of participation rate in education or measure of disparity between various regions, social classes, etc. The following types of variables seem to fall under the heading of "opportunity":

1. One set of variables embraces the non-scholastic, physical ones. Here, we are dealing with the economic resources available to the student's family, the cost required for tuition, the geographical distance to a school and the transportation available.

2. Another set of variables includes the physical school facilities, such as the quality of the physical plant in general, laboratories, library, textbooks, etc.

3. A third set of variables has to do with certain psychological aspects of the home environment, such as the level of the parents' aspirations with regard to the schooling of their children, the general attitude towards learning at home, and the amount of independence training, language training, and so on.

4. A fourth set of variables describes the psychological aspects of the school environment in terms of teacher competence, teacher attitudes towards different categories of students, teacher expectations with regard to student performance and student motivation.

5. Finally, a fifth set of variables describes what in the Mathematics Study of the International Association for the Evaluation of Educational Achievement (I.E.A.) was referred to as "opportunity to learn" (Husén, Ed., 1967, II., p. 162 et seq.). Here we are dealing solely with opportunity in the school situation, i.e. with purely pedagogical conditions in terms of how much time is allotted to a subject or a topic in the timetable, how much time the teacher devotes to that topic and how much homework he assigns to it. This kind of opportunity was rated item by item in the mathematics tests by the teacher who taught the actual class. But independent ratings were also obtained from

subject-matter experts who assessed the opportunity for a whole national school system.

Thus, in analysing what factors act as hindrances to the achievement of equality, we would have to make two distinctions. In the first place, we should distinguish between physical and psychological barriers. There might be equal opportunity to get access to a certain kind of education and to pursue it in an external and formal sense: no tuition has to be paid, all costs are met from public funds, transportation is taken care of and so on. But certain psychological barriers remain even when the physical ones have been removed, and once the material conditions have been equalised, they operate with relatively greater strength. In the second place, we have to consider the entire educational environment which consists of the combined effect of both the physical and psychological conditions in the home, society at large, and the school.

As indicated above, differences in educational opportunity between, for instance, social classes or geographical regions will, in one way or another, have to be measured by participation rates at various levels in the educational system. The most comprehensive surveys, based mainly on European studies, have been carried out by the O.E.C.D. in its background studies (No. 4 and 10) for the Conference on Policies for Educational Growth in 1970 (O.E.C.D., 1971). There, "educational participation" is defined as "the enrolment of persons at a given level of formal education, or the transition or retention of students from one level to the other" (O.E.C.D., 1971, p. 8). Various types of rates or ratios have been suggested depending upon what official statistics are available. These rates fall into two main categories:

1. Perhaps the most obvious way of calculating participation would be to relate the enrolment to the population eligible for education at a certain stage in the system. The most accurate measure is thereby obtained by calculating the ratio for each age cohort separately, e.g. how many 6-year-olds, 7-year-olds, etc. of the total age groups are in full-time schooling. This ratio, however, does not provide a measure of the types of education in which students of any one age group are enrolled.

2. Another ratio is presented in Background Study No. 4 to the above O.E.C.D. Conference (O.E.C.D., 1971) and is defined as the "ratio of enrolment in a given grade ... at a point in

time to enrolment in ... a lower grade at an earlier point in time for the same cohort" (op. cit., p. 9). Such a ratio, called transition rate, becomes a very good measure of participation when longitudinal statistics are available and it provides a more accurate picture of the flow of students through the system by grade instead of by age groups (Ljung, and Jansson, 1970). Particularly when the age-grade discrepancy is large, as is the case in systems with a more flexible age of school entry or with a considerable grade-repeating, the transition rate is by far the best measure. If longitudinal data are not available, one has to compare statistics from different points in time.

If neither population figures nor longitudinal enrolment figures are available, one could attempt to calculate the participation rate in education above the compulsory school age by using the approach adopted by I.E.A. where a "retentivity index" was calculated for each of the nine socio-economic groups among the students in the pre-university grade, most of them being 18 to 19. Since no figures on parental occupation were available for the whole population of 18-19-year-olds, the best approximation was derived from the figures for the 13-year-olds where the whole age cohort was in full-time schooling (Husén, 1967, Ed., II, p. 107 et seq.).

3. A third index of participation that provides not only information about access but also about selection during a given stage in the system is the "attrition rate" - the proportion of students who either repeat one or more grades during the stage or drop out from school. A beautiful example of a mapping out of this kind by relying on longitudinal statistics is afforded by Educational Policy and Planning: France (O.E.C.D., 1972, in press). Another example of how attrition is related to social class is provided by the follow-up of all the fourth-graders in Stockholm over a period of five years (Svensson, 1962, Husén & Boalt, 1968).

3. CRITICISM OF SOCIAL CLASS AS A MEASURE OF EDUCATIONAL ENVIRONMENT

In studies of the degree of disparity in participation at various levels in an educational system, social class has usually been employed as a kind of over-all index of social background. The most frequently used categorisation is upper, middle, and

lower, which roughly correspond to the professional-managerial class, semi-professional or white-collar workers and manual workers respectively. In fact, the occupation of the father is usually the information employed for this categorisation, since it is considered to be a major determinant of the social origin of the child. In surveying European studies of group disparities (O.E.C.D., 1971), Background Report No. 10 for the O.E.C.D. Conference on Policies for Educational Growth (op. cit., p. 93, et seq.) has brought together the classification schemes employed by the statistical services, usually within the Ministries of Education. Most classifications are based upon some kind of occupational categories which in their turn are derived from the occupational titles. In addition to parental occupation, there is much evidence to show that parental education (e.g. amount of formal schooling) is an important variable for which data can be collected relatively easily. In some cases attempts have been made to rank the categories according to general status, level of qualification or position in a hierarchy. Good illustrations of such categorisations are provided by several British studies, for instance one by Miller (1970) on school achievement and social class. He employs a classification scheme already used in the survey on "early leavers" in 1954 (H.M.S.O., 1954):

Non-manual Occupations

1. Professional and high administrative
2. Managerial and executive
3. Supervisory, white-collar
4. Routine clerical

Manual Occupations

5. Foreman, supervisory (manual)
6. Skilled manual
7. Semi-skilled manual
8. Unskilled manual

The International Labour Organisation (I.L.O.) has developed a scheme with nine categories which are put in a hierarchical order according to some kind of general status criterion. This scheme was employed cross-nationally in relating home background to participation and to school achievement in the mathematics phase of the I.E.A. project (Husén, Ed., 1967). The categories are:

Group 1. Higher professional and technical

Group 2. Administrators, executives, and working proprietors, large and medium-scale

Group 3. Sub-professional and technical

Group 4. Small working proprietors (other than in agriculture, forestry or fishing)

Group 5. Proprietors and managers in agriculture, forestry and fishing, in most instances owner and tenant operators of farm enterprises

Group 6. Clerical and sales workers

Group 7. Manual workers, skilled and semi-skilled

Group 8. Labourers (hired) in agriculture, forestry, and fishing

Group 9. Unskilled manual workers (excluding those under 8)

It is quite obvious that, by and large, this scheme reflects an occupational status hierarchy. But the difficult categories are farmers and farm workers: should they be placed before or after some other categories? Should farmers be regarded to be on a par with, say, clerical workers or be placed before or after them? Should farm workers be put in the same category as unskilled workers or skilled workers? There are other difficulties as well as these that make the scheme hard to use cross-nationally.

In some cases the amount of formal education generally required in the various occupations is mixed with status criteria. Härnqvist (1966) carried out a national survey, based on data collected by the Swedish Bureau of Census, of the relationship between certain social background factors and educational choice. He used a five-category scheme:

A. Professionals (whose occupations almost always require a university degree), teachers, both secondary and elementary, executives, proprietors of large enterprises, civil servants, and officers in the armed forces;

B. White-collar occupations requiring formal education up to matriculation, proprietors of small or medium enterprises;

C. White-collar occupations requiring only compulsory formal schooling;

D. Farmers (owners or tenants of farm enterprises);

E. Manual workers (including farm workers).

As already said, in a large number of studies carried out during the last few decades aiming at elucidating the relationship between social environment and educational attainments, environment has been indexed by social class. As a rule this has been a categorisation into upper, middle, and lower (working) class. The principal criteria upon which such a scheme is based are the following - the way they have been "mixed", i.e. weighted, differs quite a lot:

1. The amount of formal education that is either required or usually attained by the holders of the various occupations.

2. Self-reported and/or assessed earnings. In most cases the operationally-defined variable is taxed income.

3. The status attached to the respective occupations in the promotion hierarchy within enterprises, the Civil Service, etc.

4. The status attached to the occupations according to some kind of prestige rating.

As is evident, these four criteria are highly intercorrelated.

All categorisations, of which some have just been illustrated, are subject to serious criticisms as composite, overall measures of environments, even more so as measures of educational environments. The social class index, which is an extremely blurred measure, is particularly open to such criticism.

Several researchers in recent years have urged that social class should be dropped as a descriptive instrument. They propose that instead one should try to pinpoint what in the children's home background or in the wider social setting in which they are growing up can, from an educational point of view, be regarded as relevant factors. If no attempt is made to identify what these relevant variables are in a much more precise way, we shall not be in a position to provide research evidence that in its turn can lay the basis for programmes intended to improve the conditions of the disadvantaged.

The emphasis in recent years has, therefore, been on identifying process variables that can be recognised as closely related to school attainments. One example is Henry's (1963) study of the so-called hidden middle-class curriculum. Another is Bernstein's (1961) on language development among lower-class children and its implications for failure in school. Bloom (1965) and his students, such as Dave (1963) and Wolf (1964), have tried to identify certain aspects of the parent-child relationship such as parental approval and standards of excellence and expectations that are conducive to success in school.

Miller (1970) developed an inventory that enabled him to obtain information on the children's own perceptions of their environment. He hypothesized that the inventory should comprise items tapping such variables as parental interest, goal aspirations, home relationships and parental dominance. A factor analysis of the inventory provided eight factors, of which six were positively and two were substantially negatively correlated with an over-all scholastic performance criterion. These factors had throughout a much stronger correlation with academic achievement, as measured by standardised achievement tests, than social class which correlated only .35 with achievement. When social class was partialled out or held constant, the correlations between self-reported home environment and school performance were on average reduced only by about .05. Miller concludes (op. cit., p. 268): "This study has suggested that less attention may well be given in the future to social class per se with regard to school performance. It is a crude variable of limited direct importance in the problem of school achievement."

It should, however, be pointed out that educational performance in terms of grades and scores on standardised achievement tests is not identical with other important measures of educational attainment, such as retentivity (Husén, Ed., 1967), transition rate, and attrition rate (O.E.C.D., 1971). Boalt (1947) followed a complete age cohort of 4,895 children from grade 4 to grade 13 and related various measures of educational attainments to their social background as indexed by social class (upper, middle, lower), assessed income and welfare record known or unknown. He defined "social handicap" as the partial correlation between a social background variable on the one hand and educational attainment on the other, with grades given at the previous stage partialled out or held constant. The two main social background

variables were social class and assessed income. The three attainment variables were admission to academic secondary education, grade-repeating or drop-out, and grade point average. The following partial correlations reflecting the amount of social handicap were obtained:

	Social Class	Assessed Parental Income
Selection to junior academic secondary school (realskola)	.57	.43
Attrition (grade-repeating)	.17	.28
Grade Point Average	.09	.07
Selection to senior academic secondary school (gymnasium)	.47	.45
Attrition (grade-repeating) in gymnasium	.15	.07
Grade point average in the matriculation examination (studentexamen)	.12	.07

As can be seen, social handicaps operate much more strongly in selection from one stage to another than in performance at a given level in terms of marks and ability to get promoted without grade-repeating. We therefore have to put in a caveat when it is suggested that we should throw out social class categorisations altogether in attempting to relate attainments to social background. Even if actual performances are weakly related to background indexed by social class, participation rates and transition rates are not. This has been shown, for instance, by Jackson and Marsden (1968).

4. EQUALISATION INCOMPATIBILITIES

It will be evident from what has been said above that there are certain contradictory objectives, or incompatibilities, in the way equality of educational opportunity has been conceived. As already pointed out, a realisation of the goal of equality is made very difficult by the fact that human beings from a genetic

point of view are born unequal and that, during the first years of their lives, they are brought up by parents who differ not only with regard to their hereditary equipment but also to their social condition.

It must not be overlooked in this connection that there is a tendency among psychologists with a hereditarian view to generalise from findings that apply to somatic, to psychological traits, i.e. to behaviour. In my view, such an approach is not justified (cf. Anastasi, 1948). However, Jensen (1969), Burt (1966 and 1970) and others have drawn heavily upon findings from genetic studies of, for instance, standing height or blood types. It is one thing to try to calculate the heritability of traits such as height and weight that are directly accessible to observation and measurement, but quite another to determine it for cognitive or other traits that have been inferred from observed behaviour (Anastasi, 1948). We shall deal with the heredity-environment controversy, as far as scholastic ability is concerned, in Chapter 4. Suffice it to point out here that there are indications that the heritability of the cognitive traits that account for about half the variance of scholastic attainments have been grossly overestimated, particularly if they are drawn from twin studies.

The incompatibility between equality and inherited differences (be they mainly genetic or environmental) makes one ask to what extent equality should mean identity of treatment. Does it mean that the treatment should be identical, or should it be so geared that optimal conditions are provided for each child to develop to the limits of his capacity? Dobzhansky has recently dealt with these problems from a genetical point of view (Dobzhansky, 1968), and I myself have, in another connection, pointed out that the issue can be stated in a paradoxical way, namely that every child should have equal opportunity to be treated unequally (Husén, 1970). Such a philosophy is behind the efforts to bring about individualised instruction (cf., e.g., Block, 1971), but it aims at attaining greater equality of educational achievement and is by no means conducive to increased variability. One could proceed and state another paradox that is a corollary to the first one: the very fact that children from the outset are unequal enables a democratic society to give them equal opportunity to be treated differently without incurring the risk of a fully uniform society. Had they all from the

beginning been genetically equal, there would still have been ample reason to treat them differently so as to bring out the variation without which the world would be a pretty unbearable place.

Dobzhansky raises the question of whether attempts to bring about equalisation in terms of treatment, particularly in the educational system, will lead to a wider or a more narrow variability in, for instance, scholastic performances. If measures are taken to remove environmental barriers that prevent the development of scholastic ability, could we then expect a shrinking variability of scholastic achievement? According to the simple model that implies that observed variance is the sum of genetic and environmental variance, the answer to this question would be "yes" (Husén, 1963). But if environment and heredity are highly correlated, the answer might be "no". Thus, the full utilisation and promotion of talent by removing discriminatory barriers would in this case lead to a meritocratic society. Instead of having a society built on social and birth prerogatives, we would get one built on genetic prerogatives, particularly when educated ability is such a status-determining factor as it is becoming in present-day society.

Another incompatibility is inherent in the demands of our modern, highly-specialised and complex society with its wide range of differentiated roles (cf. Dobzhansky, 1968). Indeed, one is entitled to look into the extent to which the dynamics behind its social fabric are actually conducive to the promotion of intellectual and social differences. We do not have empirical data by means of which comparisons could be carried out between various stages in the development of, for example, European societies since the beginning of the 18th century. There are, however, indications that the variability in terms of such cognitive differences as account for a major portion of scholastic attainments covered a much wider range then than now. In the first place, formal schooling was the prerogative of only a small segment of the population, so it is pointless to make comparisons between then and now in terms of scholastic achievements. It would seem to make much more sense to compare two stages fairly close to each other in time in our own societies, for example, to compare the educational systems in Europe at the turn of the century with the systems that exist nowadays in terms of variability of attainments. More than 50 years ago, all the educational systems were

dual-track systems with one elementary school of rather poor quality for the masses and an academic, university-preparing secondary school for the social élite. For a long time these two systems were completely separate, that is to say access to secondary education was mainly gained by attending private preparatory schools. The core problem that ought to be elucidated by a comparison between then and now, therefore, is if and how variability in scholastic attainment is affected by the setting up of a single-track system during compulsory school age.

There are indications that structural changes in the systems have narrowed down the range. When comparisons were made between comprehensive systems on the one hand and selective or dualistic systems on the other in the Mathematics Study of the International Association for the Evaluation of Educational Achievement (I.E.A.), it was found that by and large the comprehensive systems showed a lower spread of student performances (Husén, (Ed.) vol. II, 1967). One could, of course, question whether the introduction of a single-track, unitary system is an outcome of greater homogeneity in society brought about by social change (which in its turn is an outcome of either "spontaneous" change or deliberate social policy) or if it has been conducive to such a homogeneity. Surveys carried out in Sweden indicate that structural changes of this kind, which will be more fully dealt with in Chapter 4 (p.110 et seq.), are instrumental in narrowing down to some extent the disparity in educational participation between various socio-economic groups.

5. THE CHANGING CONCEPTION OF "EQUALITY OF EDUCATIONAL OPPORTUNITY"

In a paper published in the Harvard Educational Review, Professor Coleman (1968) has given a most lucid analysis of the concept of "equality of educational opportunity". He distinguishes four conceptions.

1. In pre-industrial society, with its extended family and patriarchal kinship system and the family as the unit of production and as the centre of social welfare responsibility and education, the concept had no relevance at all. Geographical, occupational and social mobility were minimal.

2. The industrial revolution changed the role of the family, which ceased to be a self-perpetuating economic unit or a training ground. Children became occupationally mobile outside the families. Training and social welfare became community responsibilities and institutions were provided where young people could learn skills that made them marketable outside the family. Such elementary, tax-supported and compulsory schooling was not universal in a strict sense, however, since it was only intended for the great masses, whereas the upper class already had a system of preparatory schools for the secondary schools and the universities which in their turn prepared for the upper-class occupations. Thus the dual, class-stratified system in Europe emerged.

3. Both liberals and socialists in Europe for a long time conceived of equality of opportunity as being equality of exposure to a given curriculum. It was up to the child and his family to take advantage of the exposure offered. If he failed, he was himself to blame. Thus, the important thing from the point of view of policy-making was to construct the system in such a way that all children, irrespective of social background, would be offered formal equality in terms of equal and free access to education.

4. The liberal conception took the child's future for granted. The problem of assigning children to different programmes in a comprehensive system is to find programmes that will "suit the individual needs" of each child. But the real problem is that "what is taken for granted" is the problem. No guidance programme, even if it is based on the most elaborate system of testing, can predict what will "suit" a child in terms of his educational and/or occupational career. When one realises that the essence of the problem is not the starting point but the effects of schooling, then one can begin to reformulate the problem in terms of how to bring about more equality of performance. The core of the problem, then, is whether equality should be seen as a starting point or a goal.

For the purpose of our own further discussion, we have distinguished three major stages in the development of the concept of educational equality, corresponding to three more or less distinct social philosophies. These are (a) the conservative; (b) the liberal; and (c) what I may call a new conception of educational equality.

a) The conservative conception of "equality of educational opportunity"

The first conception of equality of educational opportunity, let us call it the conservative one, was prevalent in most industrialised countries until World War I. God had bestowed different amounts of capacity upon each human being, and it was up to the individual to make the best possible use of that capacity. A hyper-conservative variant of this philosophy maintained that, by and large, God had given each individual the aptitudes that corresponded to the caste or social class in which he was born. The more or less tacit assumption, then, was that he had not only to make optimal use of his capacity but be content with it, because he had been given what he by birth deserved. A more liberal variant of this philosophy that can be traced from the Renaissance through the 18th century, particularly during the mercantile era with its emphasis of selectio ingeniorum (selection of talent), advanced the idea that it was important to search for the scarce gold of talent among the masses for the benefit of the nation's economy and the fame of the individual who might be thus discovered.

The policy implications of this philosophy are interesting to follow in Europe from the end of the 19th century when the changing economy led to demands for new types of schools. A case in point is Sweden during the 1880's. Rapid industrialisation initiated a demand for adequately trained white-collar workers, particularly clerks, while self-employed persons who were running small enterprises also needed more advanced skills than those provided in the elementary school. What existed already was no more than the elementary school, which had been made compulsory in the 1840's and provided a quite insufficient preparation for the new class of clerks that the expanding industry and commerce needed, and the classical gymnasium, which by and large had not changed since the middle of the 17th century and prepared students for the university with a curriculum that leaned heavily towards Latin and humanistic studies.

The conservative view of what needed to be done was as advanced in a brochure by a secondary school head teacher, Fredrik Andersson (Husén & Boalt, 1968). He contended that the gymnasium suited the needs of those who were heading for upper-class positions and the elementary school for those who belonged to the

mass of manual workers in rural or urban areas. To cater for the needs of this new middle class of clerks and small entrepreneurs, he therefore proposed a middle school, to which the students should be allowed to transfer also from the public elementary school and from which they could graduate at the age of 16 or 17, i.e. two or three years earlier than from the upper secondary school. Legislation enacted by the Riksdag in 1904 divided the gymnasium into two stages and postponed the introduction of Latin in order to make room for a less humanistic curriculum during the lower stage of the secondary school. It should in this connection be pointed out that transfer from the public elementary school to the academic secondary school was not possible until 1894. Before then the students had to go through private preparatory schools.

A faint reminder of the conservative philosophy was given by the 1959 report of the German Commission on Education (Deutscher Ausschuss für das Bildungs- und Erziehungswesen), which was appointed in the 1950's by the Permanent Conference of the German Ministers of Education to draw up guidelines for the further development of the school system in the Federal Republic but without a mandate from the Federal Government, which at that time had no authority as far as education was concerned. In this report a common structural framework (Rahmenplan) was developed. The Volksschule, Mittelschule and Höhere Schule were to some extent thought to serve the needs of three different social classes.

The Swedish and German examples apply to all Western highly-industrialised countries. The creation of a short non-university-preparing, general secondary school has in most cases been explicitly based on the argument of the need for middle-level manpower.

In two so-called "black papers" (Cox and Dyson, 1969 and 1970), a group of authors has attacked the recent reforms in English education, particularly the attempts to abolish streaming and the eleven-plus examinations and to introduce comprehensive secondary education. It is contended that recent changes have brought about a marked decline in educational standards and that this threat to the quality of education has been launched by the "ideology of egalitarianism". Angus Maude in the first "black paper" (Cox and Dyson, 1969) under the title "The Egalitarian Threat" (op. cit., p. 7 f.) tries to make a distinction between equality of educational opportunity and egalitarianism. The

egalitarian wants all children to have equal opportunity to obtain a good education. But the egalitarian philanthropist is letting his emotions carry him away. "In the name of 'fairness' and 'social justice', sentimentality has gone far to weaken the essential toughness on which quality depends." (op. cit., p. 7). The egalitarian "instinctively dislikes any process which enables some children to emerge markedly ahead of their fellows." He therefore attempts to destroy the schools which are taking special care of the most talented students. "All kinds of education are not, as the egalitarians pretend, of equal worth and importance, nor can anything but harm come of claiming equal status for all kinds of educational institutions." Equality of opportunity is named a worthy ideal, which, however, cannot be achieved quickly if one wants to avoid "damaging the total quality of our society". (ib.).

In the Introduction to "Black Paper Two" (Cox and Dyson, 1970), the editors quote Maude as saying that one can have either equality or equality of opportunity and that one cannot have them both. In fact, the attempts to bring about equality are inimical to the attempts to achieve equality of educational opportunity.

In "Black Paper Two" (Cox and Dyson, 1970), Szamueli makes the case that a comprehensive system that treats every student equally in terms of formal availability of education creates even greater inequality than the present British elitist system. What should be achieved is to provide every child with the best possible chance to develop his particular talents in an optimal way. "This", he goes on to say, "can be accomplished only by an unequal, differentiated educational system, which levels out the handicap created for the able pupil by the inadequacies of his family's social and economic position." (op. cit., p. 49, et seq.). The English grammar school has provided "countless gifted working-class children with the opportunity to break down the class barriers and achieve unrestricted scope for their talents." (op. cit., p. 50). In referring to socialist systems, such as the ones in the Soviet Union and Hungary, Szamueli contends that the attempts to create equality in education are helping to preserve the social and economic inequalities that exist outside the school.

Szamueli presents some statistical evidence, gleaned particularly from Soviet publications, that appears to show that in the Soviet Union considerable disparities exist between, on the one hand, working-class and peasant children and, on the other,

those from homes of the intelligentsia. But it is difficult to see how this is related to equal opportunities in terms of economic conditions or the comprehensive structure of the system. Indirectly, however, the figures quoted about difficulties in getting into institutions of higher learning indicate that selectivity, as always, favours those who come from a more educated background.

b) The liberal conception of "equality of educational opportunity"

The philosophy still prevailing in the development of the concept of equality of educational opportunity is what can be termed the liberal one. As an illustrative case one could cite F. Berg, in the 1880's an elementary school teacher and later a Member of the Swedish Riksdag and for two periods Minister of Education. Berg challenged the conservative view that power and capacity had accrued to one particular social class and strongly advocated the elementary school as a single track school that would encompass children from all social classes. After the completion of the six years, they could then pursue different types of education, practical or theoretical, depending upon individual bents (Husén & Boalt, 1968).

Somewhat schematically, this classical liberal philosophy could be described like this. Each individual is born with a certain, relatively constant, capacity or intelligence. The educational system should be so designed as to remove external barriers of an economic and/or geographical nature that prevent able students from the lower classes taking advantage of their inborn intelligence which entitles them to due social promotion. To quote one reformer who strongly influenced Berg, Count Torsten Rudenschiöld in his book on "Thoughts concerning social mobility" (Tankar om ståndS-circulationen, 1854) developed a blueprint for a school system that would promote a maximum of social mobility in not only seeing to it that able young people from lower classes were duly promoted, but that upper-class youngsters with limited capacities should be given humble schooling and channelled into humble occupations as well! Everybody, via his education, should be given the social status to which he was entitled by his inherited aptitudes.

Many structural school reforms in Europe during this century have at least partly been guided by this philosophy. By

extending education to more advanced levels, by making the compulsory part of it less differentiated and more single-tracked and by making it available to children from all walks of life, one can remove the handicaps that are inherent in being born poor and living somewhere far from a school.

The 1944 Education Act in England, which made secondary school education universal and available not only to those who could afford it, was regarded by many as a democratic breakthrough. But about ten years later when a survey was carried out to elucidate its effects on the social structure of the enrolment for the academic secondary school, it was found (Floud et al., 1956) that at least in certain regions the proportion of working-class children admitted to grammar schools was lower than before the "breakthrough". When the economic barriers were removed and all the places were thrown open for competition within the framework of the 11-plus examinations system, children from the middle and lower-middle-class homes were in a better position to compete than those from less privileged backgrounds and therefore achieved an increased representation. Previously, a certain quota of places had been available to those from poor backgrounds. Floud and her co-workers (1956) were the first investigators to demonstrate clearly that selectivity does not go together with equality of participation. A certain amount of social bias always goes into a selective education system (Husén, 1971).

The transition from an ascriptive, feudal society, where more advanced formal education was a prerogative of those who by birth, wealth and connections were designated for upper-class positions, to a society in which access to and promotion and reward within the educational system depended upon tested ability, was regarded as a tremendous step forward by means of which justice and efficiency alike were expected to be reached. In attempting to "democratise" education, objectively assessed academic ability (be it so-called intelligence test scores, achievement test scores, examination grades, or any other objective indicator of accomplishment) seemed to be the self-evident selection criterion to replace social class, economic background and personal connections.

In analysing the educational system in industrialised and technological societies, Bourdieu (1967), for example, contends that there are indications that the educational system tends to assume the function of reproduction, i.e. to preserve or even

reinforce the existing structure of society instead of being an agent of social mobility for inherited ability and the motivation to use it.

Recent surveys of existing research on participation rates and school achievements as related to social class (for instance, background studies to the 1970 O.E.C.D. Conference on Policies for Educational Growth, O.E.C.D., 1971) provide fairly consistent evidence that extended provisions for education, and thereby increased formal accessibility to free secondary and higher education for all children of a given age, have not considerably changed the social structure of the enrolment to any great extent. Students who take advantage of the increased opportunities are already in a favoured or semi-favoured position. The same holds true for adults. Legislation enacted in Sweden by the Riksdag in 1966 made the gymnasium education (i.e. upper-secondary education qualifying for university entrance) available to adults free of charge in late afternoon or evening classes. Surveys conducted to reveal the nature of this new enrolment showed consistently that those who have taken advantage of the new opportunities are, to a large extent, youngish people on the "launching pad" at the foot of the promotion ladder who have already received a certain amount of formal education. Participation by individuals from the class of unskilled workers is minimal (Eliasson and Höglund, 1971).

What has been demonstrated by drawing upon survey data could just as well be brought out by scrutinising the logic behind the liberal philosophy, according to which admission and promotion in the educational system should be guided by individual capacity or aptitude and not by socio-economic background. The specific criteria of "capacity" are, by and large, grades (marks), scores on objective tests and examination results. All these criteria are correlated with social background. Thus, socio-economic status indices that measure either status ratings (upper, middle, or lower-class) or certain economic factors (such as income or size of family) tend to correlate between .2 and .4 with test scores and school achievements. When, however, one takes into consideration the major psychological aspects of the environment in which the child is brought up - for example the interaction between mother and child, independence training, parental support and the extent to which emulation of relevant parental behaviours is possible and rewarded (Weiss, 1970) - substantially higher

correlations are obtained. Wolf (1964) and Dave (1963) found correlations which ran as high as .70 between certain environmental process variables on the one hand and intelligence tests and scores on standardised achievement tests on the other.

Thus, access to and promotion in accordance with objectively assessed capacity within the educational system by no means exclude the influence of socio-economic factors which, according to the liberal philosophy, are discarded by employing criteria of academic merit. As long as admission to a certain type of education is generous in terms of the proportion admitted from those who apply and the attrition rate during a given stage is low, and as long as education is available to all free of charge, socio-economic background plays a less prominent role. But as soon as a competitive selection takes place, either on admission or in terms of grade-repeating and drop-out during the course, then the correlation between background and indicators of performance increases considerably. A case in point is the selection for the faculties of medicine in Sweden which, as with all lines of study with restricted admission, is carried out on the basis of marks obtained in the gymnasium. With the possible exception of the intake to the training programme for psychologists, there is no other programme that is so highly selective. Also, there is no other faculty with such a grossly unbalanced representation of the social classes.

In an article in the Saturday Review entitled "End of the Impossible Dream", Peter Schrag (1970) has subjected the present school crisis in the United States to an incisive analysis. He points out that the establishment of the common school has been part of the American Dream, that the schools held the promise of providing equality of educational opportunity and that they were expected to guarantee an open society unaffected by social and economic inequities. Horace Mann in the middle of the last century foresaw that a school for children from all walks of life would be "a great equaliser of the conditions of men, the balance wheel of the social machinery... It does better than disarm the poor of their hostility toward the rich: It prevents being poor..." (quoted from Schrag, 1970). Apart from being an equaliser, the educational system was seen as a prime instrument for the individual born in humble circumstances to join the certificated and schooled meritocracy. Everybody should be given equal opportunity to achieve and to be promoted, provided he had the aptitude and the energy to go ahead.

It has not until now been realised that these two objectives, as they are commonly conceived, are not in fact compatible. The school cannot at the same time serve as an equaliser and as an instrument that establishes, reinforces and legitimizes distinctions. This has been particularly highlighted by recent surveys that have tried to account for children's differences in school achievement. Their social and economic background, and that of their peers, account for much more of the difference in accomplishment than all the school resources together (Coleman, 1966; H.M.S.O., 1967; Husén, (Ed., 1967).

Schrag observes that until about a decade ago "equality of educational opportunity" was interpreted in terms of social Darwinism: "Everyone in the jungle (or in society, or in school) was to be treated equally: one standard, one set of books, one fiscal formula for children everywhere, regardless of race, creed, or color. Success went to the resourceful, the ambitious, the bright, the strong. Those who failed were stupid or shiftless, but whatever the reason, failure was the responsibility of the individual (or perhaps of his parents, poor fellow), but certainly not that of the school or the society." (ib., p. 70).

Schrag points out that as long as we are applying one uniform, relatively linear standard (bright, average, slow learner or whatever labels we want to use), some students are, by definition, destined to fail. In his writing about "mastery learning", Professor Benjamin Bloom (Block, 1971) has been questioning the whole conception of individual differences in student achievement that has been regarded as an axiomatic foundation of what has been going on in the schools, particularly during the last century when education in developed countries has become universally available. Students are continuously judging their performances against the standards set by their teachers, peers and parents. But these standards vary, so a student who belongs to the bottom group in a school with very high standards perceives himself as a failure even if his attainments measured against some kind of national standard are far above the average. Conversely, a student with the same objective level of attainment perceives himself as a success in a school with low standards. Bloom points out that these perceptions very strongly influence student interest, attitudes and motivation, which in their turn contribute to widen and reinforce the individual differences in attainments. This is one important explanation of the fact that variability in attainments

for instance in reading, increases by grade. One of the major points in the strategy that goes under the name of "mastery learning" is to set an absolute goal in such a way that, with appropriate methods of instruction, it can be reached by the great majority of students (Block, 1971).

The rethinking about individual differences that has been going on in recent years has important practical implications. According to the "social Darwinism" view, equality had to do only with what goes into the system, its input resources. The question is now being asked if one should not also consider what comes out of the system and thereby waive the equality at the input side by providing extra resources for those who are regarded as socially and/or culturally deprived. This was, for instance, the philosophy behind the Head Start programme. Coleman (1966) has pointed out that "equality of educational opportunity implies not merely 'equal' schools but equally effective schools, whose influences will overcome the differences in the starting point of children from different social groups."

Educational "deprivation" is usually defined in terms of one particular set of values, namely the extent to which the social and economic conditions under which a child is brought up are conducive to success in the regular school. Other values enhance cultural distinctions which, in our pluralistic society, have also to be taken into account by the educational system.

Dobzhansky (1968) has concerned himself with what he calls the "confusion of political and sociological genetics". He states the problem of equal opportunity in a paradoxical way: "Because human beings are individuals and not 'types', because they are all different, equality of opportunity is necessary." (op. cit., p. 554). But equality of opportunity does not imply identity of treatment. The genetic diversity of the human species enhances its adaptability, and in order to facilitate adaptability, one would have to see to it that every individual is given equal opportunity to achieve the realisation of his own particular potentialities.

The practical implication in terms of policy that ensues from the rethinking of the concept of equal opportunity is that it is not very fruitful to put the responsibility for scholastic success or failure on the individual. One has to shift the burden of responsibility to the system - to the educational system or to society at large.

In the long run, then, it seems that the problem of achieving equality of opportunity is one of "restoring multiple options" based on different values but values that are not ranked along only one dimension. Schrag puts the problem very succinctly: "By definition, no society with but one avenue of approved entry into the mainstream of dignity can be fully open. When that single instrument of entry is charged with selecting people out, and when there are no honourable alternatives for those who are selected out, we are promising to all men things that we cannot deliver." (op. cit., p. 93). No wonder, then, that we are beginning to amass so much evidence for uniform provision within the educational system not being the solution to a more "equal" society. To paraphrase Orwell: those who at the outset are more equal than others will take more advantage. That is the lesson learned from equalisation programmes at all levels of education.

c) A new conception of "equality of educational opportunity"

Removal of economic and social barriers which, according to the liberal philosophy, would open the gates to more advanced education for all whose natural aptitudes qualify them patently does not suffice. Inequalities in a highly selective and/or competitive system do in fact remain, or even tend to increase. The difference between comprehensive systems with a single track basic school covering the compulsory school age and those with a dual track structure, where selection in one way or another actually takes place or is prepared earlier, is that in the comprehensive system the inequalities tend to move up to the pre-university or university level. This is the case, for instance, in Japan.

The decisive impetus to a new thinking over this whole issue has come from the interest now being taken in pre-school education. Bloom (1964), by re-analysing previous studies, showed that more than half the differences in performances on conventional intelligence tests found at the end of high school could be accounted for by differences ascertained at the age of 6, i.e. at the beginning of regular schooling. Within a given social stratum, the differences showed even greater stability. This meant, then, that if environmental influences were of great importance in bringing about intellectual differentiation, most of the differences were already there when the children entered elementary school. It therefore seemed doubtful if the school could act as

the prime equalizer. This role had to be adopted rather by the pre-school institutions, if there were any, to which the children of that age group had access.

A new area of research on early experience and the socialisation of cognitive modes in children by means of communication and language has been opened up by Bernstein (1961). It elucidates how language competence can act as a barrier or promoter in getting along in primary school (e.g., cf. Oevermann, 1969, and Hess & Shipman, 1965). Additionally, studies of the effect of environment on school motivation provided another reason for focusing attention on the pre-school years.

Thus, equality of educational opportunity cannot be achieved simply by removing certain material barriers and by using academic ability as the democratising criterion. The more competitive the educational system is, and the more essential formal education becomes to occupational promotion, or social mobility, the more likely it is that disparities will prevail.

The results of such research on pre-school education carried out in recent years lead one to a much more radical conception of equality of educational opportunity. It is not enough to establish formal equality of access to education. One has also to provide greater equality in the pre-school institutions or in the regular school for the children of various social backgrounds to acquire intelligence. So far as IQ differentiation is concerned, the major portion of it has occurred before the child has entered regular school. The family, and not least the peer culture (Coleman, 1961), still exert a strong influence. Thus, in order to achieve greater equality in school attainments, society has to adopt special means to compensate for the deficiencies of the environment in which the child grows up or to supplement what may have been done at home. In the case of families that prove indifferent or even antagonistic to the measures society contemplates, it might even be necessary to take action against their will if the equality objective is to be pursued at any price. The report of the Swedish Royal Commission on pre-school institutions bears this out.

The basic difference between the two conceptions, on the one hand the "liberal" and on the other the sociological or "radical", is, as already indicated, how they view the role of the educational system. According to the former conception, which

holds that the task is primarily to remove external barriers so as to make the original capacity in each child develop, success and failure in school primarily depend upon the individual student. Once the avenues have been opened up for free competition, his natural intellectual and moral resources are the decisive factors. If he fails, he has to cast the blame upon himself, because he has been given the opportunity and not taken proper advantage of it. According to the other conception, a student's success, and not least his failure, must be ascribed mainly to the school situation, particularly to the way instruction is organised. The basic problem, then, turns on the extent to which the school has been able to provide the conditions conducive to satisfactory student development.

On the part of the school, such a conception implies the revision of basic pedagogical notions. The common denominator for any action that would have to be taken (including remedial teaching and tutorial help) is individualisation of the entire system of instruction (Block, 1971). From this it follows, then, that equality of opportunity does not mean identity of opportunity - and herein lies a fundamental problem in a modern democracy. According to the philosophy spelled out above, equality of opportunity means that every child should be given optimal opportunity to develop his personal assets as they are at the time educational treatment in a public institution begins. The objective cannot reasonably be to establish equality in the sense that all children are treated in exactly the same way. The issue could be put in a paradoxical way by saying that one should provide equal opportunity for unequal treatment so far as socially relevant differences are concerned.

Finally, then, the modern, more radical conception of equality of educational opportunity is that, in order to achieve the long-range objective of more equality in occupational career and standard of living, remedial action must be taken in the wider context within which the schools are operating - that is, society at large. Educational reform cannot be a substitute for social reform.

Chapter 2

THE CONCEPT OF TALENT: ITS SOCIAL AND DIFFERENTIAL-PSYCHOLOGICAL IMPLICATIONS

1. THREE STAGES IN THE DEVELOPMENT OF DEFINITIONS OF INTELLIGENCE

In the social sciences, we can distinguish three stages in the development of the concept of "talent", "ability", or "intelligence".

1. The first stage consisted of attempts to arrive at a generally acceptable verbal definition. Intelligence was taken to denote a universal and, one is tempted to say, an almost metaphysically anchored quality. Representative of such a conception are the papers of the famous symposium arranged in 1921 by the Journal of Educational Psychology (vol. 12, 1921). The great majority of psychologists who, until the middle of this century, struggled to define intelligence, tried to advance definitions that were valid for all contexts and all times. Binet stated that intelligence was the ability to pass critical judgments. Terman and Merrill(1937) defined it as the ability to think abstractly. Köhler (1933) was of the opinion that it has to do with insight into larger contexts. Stoddard (1945) contended that it primarily had to do with the ability to learn and to apply what had been learned, Spearman (1927) that it was the ability to educe relations and correlations, and Wechsler (1944) that it had to do with the ability to adapt means suitable to ends, to act expediently, to think rationally and to cope effectively with one's environment. Before 1940, Stern's (1935) definition that intelligence was the ability to use rational thinking in adapting adequately to new situations was the one most current in Europe.

From a common sense point of view, each of these definitions seems to be partly valid. They more or less cover the cognitive domain we have in mind when talking about intelligence. But they all share two weaknesses. In the first place, they do

not state what media intelligence is concerned with. Secondly, they are all related to valuations that are not made explicit.

2. The second stage in the development of the concept of intelligence, the stage of operational definition, took care of the first of these two weaknesses. Intelligence was operationally defined in the same idiom as were the concepts in physics by Bridgman in the 1930's, i.e. in terms of its measuring instruments. For example, Boring's definition of intelligence as that which is measured by intelligence tests became very widely used in textbooks of psychology.

If a person is asked to define temperature, it is more than likely that he will say 'temperature is that which we determine with the aid of a thermometer'. Nobody finds this curious in any way; on the contrary, it is quite commonplace. On the other hand, we risk making ourselves appear ridiculous if we define intelligence as that which is measured by a certain intelligence test. But this latter definition is in principle similar to the former, and is what is known as an operational definition. It is often objected that intelligence tests do not measure intelligence "in a deeper sense". The real significance of this objection is perhaps most apparent if we compare it with an objection made against electrical measuring instruments (ammeters, voltmeters, etc.) on the grounds that they do not measure electricity "in a deeper sense".

The transition that has taken place in modern psychology from a psychology of abilities to a functional and operational approach resembles the transition from an Aristotelean to a Galilean mode of thought which, as Lewin (1935) has pointed out, characterised physics in the 17th century.

Theoretically, one could conceive of testing a group of individuals with all kinds of cognitive instruments and trying to determine a general index that, operationally, could be labelled "general intelligence". If we look at the procedures and instruments employed in modern psychometrics, we find that the overwhelming majority of conventional intelligence tests set out to measure things that in one way or another have to do with "symbolic" behaviour - mostly the ability to employ verbal and numerical symbols. Intelligence as conceived by most psychologists today is undoubtedly what is measured by these tests.

Thurstone (1938) administered an extensive group-test battery to college students. By means of the multiple factor analysis method he had developed he succeeded in isolating a series of group factors ("primary mental abilities"), each of which was manifest in a group of tests that were similar in content and the mental processes required. These group factors were positively correlated and this was accounted for by a second-order factor which was identified as "central" or "general" intelligence (Thurstone, 1946). From an operational point of view, one could object that this factor cannot be assumed to have any validity outside the setting from which it was derived, i.e. the actual test battery. All the tests were administered as group tests with printed verbal instructions. Consequently, it could be assumed that the "central" factor was, to some extent, due to the common format in which the tests were given. For the solution, all the test exercises required "symbolic" behaviour. Hence, it may be assumed that what had been discovered was a more general ability in performing this kind of operation. Such an interpretation is supported by the fact that the "second-order factor" was most closely related to the specifically "abstract" and "logical", i.e. the factor was particularly strongly loaded in tests connected with inductive and deductive reasoning (Thurstone, 1946).

3. The third stage in the development of the concept of intelligence is represented by criterion-referenced definitions. Attempts thereby must be made to render the underlying social values explicit. Obviously, in terms of value priorities there is considerable difference between dealing with verbal symbols, like words, sentences and reading passages on the one hand, and material, tangible objects on the other. It is not the same thing to learn meaningful contexts from books as to learn motor sequences. There is a great difference between finding out how the various parts of a mechanical contrivance function and learning a mathematical proof.

2. INTELLIGENCE AS THE ABILITY TO OPERATE WITH SYMBOLS, ESPECIALLY VERBAL SYMBOLS

The most significant objection that can be raised against all the verbal definitions I have quoted is that they are all beset with value judgments, the significance of which is seldom made explicit. What, for instance, is meant by "thinking

rationally" or by "acting adequately"? What is meant by "good response" in Thorndike's definition according to which intelligence is "the ability to give good responses from the point of view of truth"? The critical element in all these definitions is, of course, what operationally should be meant by "good", "effective", "rational", "adequate", etc. Is it possible to formulate definitions that would bring out the general validity of these terms? Evidently, this cannot be done. A certain behaviour or a given action can be "rational", "effective" or "adequate" from one point of view and in one evaluative context but be less rational or effective in another.

Behavioural scientists began to realise rather late that "intelligence" cannot be defined irrespective of social criteria reflecting value priorities. In other words, when one wishes to assess the intelligence of an individual, one cannot avoid making the observations or measurements against the background of a given socio-cultural pattern. It is the system of values, norms, and rules determining human relations that above all characterises such a pattern.

Different socio-cultural settings vary in the demands they make on intelligence or, to express this more accurately, they require not only different amounts but chiefly different kinds of intelligence. Consequently, each social context demands and trains just the variety of intelligence that is needed for that particular setting. Among people at the "food gathering" stage, for example, it is necessary to find and dig up roots or trap animals in order to survive. The man who possesses the greatest manual dexterity and ingenuity to make and use the tools necessary for this achieves the greatest measure of success in his social group. In this case, intelligence may be said to "reside in the hands". It is, however, the ability to use these hands efficiently more than the ability to think abstractly that brings such social success.

In our modern technological and complex society, it is the ability to manipulate verbal and numerical symbols (letters, words, combinations of words, figures and combinations of figures) that occupies the highest position on the prestige scale, and consequently is the criterion for intelligence. In fact, a survey of all the most widely-used intelligence tests and the major studies carried out with them reveals quite clearly that their more or less implicit aim is to measure the ability to deal with symbols -

and it is this that is referred to as "scholastic ability". Since adaptation to modern civilisation depends to an increasing extent on such ability, and as modern technology is the outcome of such "symbolic" behaviour, it should be possible, without incurring serious objections, to define intelligence as the ability to operate symbols, not only in school but in working life and in a technological society at large. Typically enough, most so-called intelligence tests in modern time, for example those of Binet, Stanford-Binet and Thurstone, have been validated against scholastic criteria such as teacher ratings, grades and similar measures of performance. The test most widely used in the United States for college entrance is not even referred to as an "intelligence test", but carries the label Scholastic Aptitude Test.

If all this is borne in mind when group comparisons are made with respect to "intelligence", certain confusions and misunderstandings may be avoided. It should, for instance, cause no astonishment that considerable mean score differences are found between various racial or occupational groups when they are given conventional intelligence tests. It may seem banal to point this out; nevertheless investigations are still carried out (cf., e.g., Jensen, 1969) with the aid of such conventional intelligence tests to measure "differences in intelligence" between various racial, social or occupational groups. Lundberg (1939, p. 453) was the first to point out the vicious circle characterising the logic employed in proving that a test does in fact measure intelligence. Presumably, a test that is properly constructed should be able to differentiate between more or less intelligent individuals. By "more intelligent" individuals we mean those who, in <u>our</u> cultural or social pattern and with the criteria employed there, are able to get along more efficiently. The criteria of intelligence employed are based on certain socially-determined standards of judgment, such as success at school, in business, in politics, and so on. The test items are validated against the chosen social criteria, which self-evidently must imply that those who score high on these criteria also score high on the test.

If we define intelligence as the ability required for "symbolic" and particularly verbal achievements, we must remember that the differences found to exist between, say, various occupational groups may be due to a large extent to differences in verbal experience and training that are implicit in the various forms of vocational training and in the vocations themselves. Every

setting and every occupation demands a special ability and tends to promote the necessary kind of training. The scientist elaborates abstract theories; the wrestler acquires perfect muscular co-ordination; the instrument-maker attains a special manual dexterity. It will be readily understood that tests that are validated against criteria pertaining to one of these occupations will generally, on this account, give higher results for people who are familiar with the occupation selected. But since in modern technological society those who can employ verbal symbols most effectively are generally the most successful, and since the increased ability to deal with verbal media implies an even greater ability to master our environment in both its animate and inanimate aspects, the ability to operate with symbols is, as a rule, more or less tacitly assumed to constitute intelligence.

The ability to operate verbal and numerical symbols is indeed highly esteemed in our culture. Outstanding popular speakers, prominent engineers or scientists are the medicine men of the present day. Those who have acquired "mastery over words" are also the masters of their environment. It is relevant to recall that in the medieval scholastic tradition the "word", the representative sign, was actually held to possess an existence of its own, which bestowed upon the master of the word - and the word was often Latin - power and greatness. The effects of this tradition can be traced throughout the whole development of higher education during modern times. In fact, we are justified in speaking of the existence of an element of verbalism in our Western education, a "scholasticism" of the kind that the Danish playwright, Holberg, holds up to ridicule in his play "Erasmus Montanus".

Not only as intelligence testers, but also in other connections, we have come to identify the ability to operate with verbal media with intelligence in general. This ability has become an over-all measure of intellectual capacity. The ability for instance to spell correctly has long been considered, and to a great extent is still considered, as a criterion of education. Those occupations that require a higher degree of verbal ability are accorded the most prestige; as a rule, they are better paid and, what is more important, they require certain verbal training and skills over and above the basic education that is available to all in the primary schools. In these circumstances, it is not surprising that representatives of manual trades show, on the average, less intelligence in the sense in which the term is used

here than do the representatives of the intellectual occupations. Neither should we be astonished that those who, on average, had better school reports "get on better" than those who had worse reports. "Getting on better" refers to both the salary scale and to the chances of promotion.

Attempts have been made to abstract certain formal characteristics from intellectual achievements, especially from symbolic achievements. Intelligence has been defined as the ability to combine things in order to form new "constructions"; or the ability consciously to use our mental apparatus in order to adapt ourselves effectively to new conditions (Stern, 1935, p. 424; Spearman, 1927, p. 161, et seq.). Spearman considers that what is most essential for general intelligence (the g-factor) is the ability to think in terms of relations and correlations. As was pointed out above, the weakness of these definitions is that they do not take into account the media through which "combinative ability", "correlative thinking" and so on manifest themselves. As a rule, verbal media are referred to, but this need not necessarily be the case.

As observed already, most so-called intelligence tests are validated against scholastic criteria, such as teacher ratings and grades. Thus, it is typical that most scholastic tests primarily measure verbal and/or numerical ability. This is the case for instance, with the widely-used Scholastic Aptitude Test (SAT) developed by the Educational Testing Service and given to the majority of applicants for college entrance in the United States. There are many indications that scholastic ability, irrespective of how it is assessed, has increasingly become the prime factor in social promotion and success. In the introduction to the section on "School Environment" in his report on "Equality of Educational Opportunity", Coleman (1966) starts out with the following statement:

> "In the first century of this Nation's history, opportunity was associated with the frontier; the pioneer was the symbol of success. For much of the second century opportunity has been associated with expanding industrial enterprise; the self-made man has been the symbol of success. Today, opportunity must be found in a highly organized technological society; the scientist is the symbol of success." (p. 36).

Whereas social scientists would agree that most of the instruments used to assess "intelligence" - be they ordinary so-called IQ-tests, particular scholastic aptitude tests, or standardised achievement tests - are primarily measuring actual scholastic ability, they would also agree that most of these tests are culturally "biased". A relatively large portion of group differences in average scores can be accounted for, not only by differences in opportunity to learn what the tests are measuring, but also by limiting their scope to those cognitive skills that are more strongly valued than others in certain socio-cultural settings.

Whereas academic ability is consistently the best predictor of academic success at subsequent levels in an educational system, doubts have been raised as to the relationship between academic ability and other socially useful talents. It is questioned why the educational system should limit itself to seek out, develop, judge and reward just academic ability, particularly in groups already rather select in terms of scholastic achievement. Holland and Nichols (1964), who studied a series of cognitive and affective predictors of various types of extra-curricular achievements among American college students, found that successful pursuits of esthetic and social activities were poorly predicted by instruments that generally constitute scholastic aptitude test batteries. Certain radical critics have gone as far as to maintain that academic ability is more or less irrelevant to most important social functions. The crucial thing here is, of course, what is meant by "useful social functions". Certainly, assessments of academic ability have been over-estimated as to their value in predicting certain aspects of a student's future career. As was shown by following up 1,500 third-graders from the age of 10-36, social background is a more powerful variable than the amount of formal schooling or IQ at 10 for predicting occupational status and earnings (Husén, 1969).

Irrespective of the view one holds about how close or remote the relationship may be between measures of educational success on the one hand and criteria of "life success" on the other (particularly since the latter set of criteria could differ considerably with differences between the social and political values held), there is little doubt that the more important education becomes for success in getting into the more qualified occupations in our complex, technological society, and the more important

education becomes to the individual in getting promoted within his occupational sector and receiving proper training and retraining, the more important then becomes scholastic ability in getting ahead in life. It has in fact become the democratic substitute for inherited wealth and birth.

3. THE NATURE-NURTURE CONTROVERSY

The French philosopher Helvetius 200 years ago in his famous treatise "On the Mind" put forward the fundamental proposition, later reflected in the American Declaration of Independence, that "all men are created equal". This opened up a wide field for social and, even more so, educational reformers. "L'éducation peut tout" was the principle epitomised in, for instance, Rousseau's "Emile - ou de l'Education" written at much the same time - 1762.

But the view that mental differences are largely or entirely inherited is also time-honoured and was later substantiated by empirical research. Sir Francis Galton, the pioneer in the field of differential psychology, was the first to suggest the use of standardised tests in measuring mental abilities. He was also the first to carry out studies of twins, without recognising, however, that there were two categories of twin pairs, monozygotic (emanating from the same fertilised ovum) and dizygotic (emanating from two simultaneously fertilised ova).

The next "wave" of environmentalism came from behaviouristic psychology, primarily from John Watson who in provocative statements aired a boundless optimism about what education could do. Another source of environmentalism was modern social psychology. It was no coincidence that these conceptions of the nature-nurture problem spread so easily in the United States, where they fitted the melting-pot ideology that had so strong an influence upon educational philosophy. Whether and to what extent it really influenced actual educational practices is another question.

The nature-nurture controversy is not one of the major issues to be dealt with in this monograph. But "nature", i.e. heredity as defined by genetic equipment, is conceived of as setting strict limits to educational treatment. The more genetically determined a trait (intelligence for instance) may be, the less the likelihood that a given educational treatment will succeed

upon it. This prompts us at least to examine the problem. We shall, however, confine ourselves to its principal aspects only.

As mentioned earlier, (p. 24), the intense emotional involvement evoked by the relative "influence" of heredity versus environment in determining human abilities stems from the far-reaching political implications of the problem, not least its implications for establishing equality of educational opportunity. This was highlighted by the recent 'Jensen case' (Scriven, 1970). What on the surface seems an academic issue is very closely related to the philosophies that underline the struggle between those who by and large want to preserve the existing social structure (including education) and those who want to bring about a more or less radical change.

The father of behaviourism, John Watson, made the well-known statement: "Give me half-a-dozen healthy infants and my own world to bring them up in, and I will guarantee to train any or all of them to become whatever you select - doctor, lawyer, artist, engineer, tinker, tailor, beggar-man or thief." Sir Cyril Burt, who quotes this statement, says that this is Helvetius in modern dress. The quotation is made in an article in which he deals with the problem of mental differences between children in the earlier-quoted "Black Paper Two - The Crisis in Education" (Cox and Dyson, 1970). This severely criticises English education and accuses the school reforms, particularly the introduction of comprehensive education, of having brought about a "marked decline in standards". The main reason given for this is that the egalitarians have not realised that their principles have "grave limitations when applied in the classroom". Since about 80 per cent of differences in general intelligence are dependent upon heredity, and since a high level of innate ability is required in order to pass certain qualifying examinations, it can be concluded that social class differences (as well as regional differences) in participation in higher education mainly depend upon group differences inherited from one generation to the next. Burt estimates that the proportion of children with a professional or white-collar class background who have the innate capacity to take a university degree is about five times as high as among those whose parents are manual workers. His conclusion is: "Class differences thus become inevitable in any civilized society" (op. cit., p. 20). Even if one goes along with Burt, however, the existing differences in participation, which in many countries are far larger than he assumes, still

leave much room for an equalisation policy. Participation rates in higher education in many O.E.C.D. countries are more than 25 times higher among young people with a professional or executive background than among those from working-class homes.

It should be noted that the belief that individual differences are mainly inherited is closely related to the belief that social class differences and race differences are inherited. In a paper presented to the International Congress of Applied Psychology in 1971 on "Educability, Heritability, and Subpopulation Differences", Jensen (1971) emphasised that it is not justifiable to generalise from within group heritability to between group heritability. However, he is convinced that the evidence derived from within group heritability studies "places certain severe restraints on some types of environmental theories of existing racial and social class differences and much more so when heritability estimates are available in both of the subpopulations being compared." (op. cit.). A genetic explanation can therefore be advanced for the disparities that actually exist.

The egalitarians who want to remove or reduce disparities are advancing the notion that intellectual differences are, to a large extent, outcomes of differences in conditions of upbringing, culture, etc., and that education could be instrumental in reducing such differences. The attempts to play down the role of heredity are therefore consistent with the belief that social change could contribute to greater equality, both in educational participation and in social conditions generally. It would in this connection take us too far to deal comprehensively with the entire area of the environment-vs.-heredity controversy. We shall, therefore, confine ourselves to a few principal aspects that may put the problem in proper perspective.

The starting point for all attempts to calculate the "proportions" of hereditary and environmental determinants lies with individual differences. In human beings we find by means of tests or other procedures that most of the personality traits under consideration show a large variability. What, at best, we can achieve is to find out the proportions of the observed variance (not of the absolute score on a test) within a particular population brought up in a particular socio-economic setting, accounted for by hereditary and environmental factors respectively. If we succeed in quantifying the two types of influences, the generalisations are, of course, limited to the population from which the sample cases are drawn.

This means, then, that the nature-nurture problem has to do with the relative importance of innate factors as compared with upbringing, education, etc., in causing variability in certain traits such as intelligence or scholastic ability. Thus, at best, what we can do is to determine to what extent the rank order in a given trait between the individuals drawn from a certain population (i.e. their relative position) has been determined by the two sources of influence. This does not say anything at all about how the absolute status of the individual is determined, influenced or affected by the environmental or hereditary factors.

The fact that certain psychological traits have a high heritability as determined either by the Holzinger (Newman, et al, 1937) or Jensen (1969) techniques does not justify the assertion that it could not be amenable to change by environmental intervention (Shulman, 1970). And, conversely, a low heritability (i.e. strong determination by environmental factors) does not guarantee that it would be relatively easy to change the trait by environmental, e.g. educational, intervention.

It should be strongly emphasised that an index of heritability provides at best only an estimate of the extent to which the observed individual differences in a trait or a performance in a particular historical and social setting can be accounted for by hereditary factors. The following example is a striking illustration of the limitation of the index to a particular setting. Today, close on 100 per cent of the adults in highly industrialised countries are literate - that is, are able to read at least at an elementary level. Those who are unable to read in spite of the provisions made by the mandatory public school system have in most cases inherited intellectual deficiencies or suffered brain damage of some kind. But two or three centuries ago only a small minority was literate, and the reason why the majority was not able to read was sheer lack of opportunity - an environmental cause.

Psychological twin research, particularly by the opportunity it offers to compare monozygotic twins brought up together and apart, has come to be regarded by some as the principal key to the problem of "separating" hereditary from environmental influences on the variance of, for instance, intelligence. In fact, both Burt and Jensen drew almost entirely upon such studies when arriving at the conclusion that 80 per cent of the variance in measured intelligence is accounted for by innate factors (Burt, 1966; Jensen, 1969).

Conclusions based on such research, however, either minimise certain limitations or completely leave them out of consideration. They are these:

1. Pre-natal conditions are difficult, if not impossible, to control. For representative groups of twins, both among school children and adults, it has consistently been found (Husén, 1959, 1960, 1963) that twins score about .25 standard deviations below the mean of single-borns on all kinds of cognitive tests, be they more "pure" intelligence tests or achievement tests. This applies to both identical and fraternal twins. There is also a somewhat higher frequency of mental retardation among twins than among single-borns. One reasonable hypothesis that could be advanced as an explanation for this is the difference in pre-natal conditions, where the twins have to "compete" for the supply from the mother.

2. Identical pairs are not treated in the same way as fraternal pairs by parents, siblings, teachers, and schoolmates. There is a strong tendency (Husén, 1959) with identical twin pairs for the two partners to be mistaken for each other, even by parents and teachers. This means, then, that the identical partners tend to be treated much more alike by parents and teachers than are the partners in fraternal pairs. It has been shown beyond any doubt that identical pairs are not only treated more alike but that the partners usually dress more alike and want to do the same things, whereas among fraternal pairs there is about the same tendency as among siblings in general not to be dressed alike and not to do the same things. Hence, there exists a clear interaction between zygosity (i.e. heredity) and environment which over time and in certain respects tends to make identical twin pairs more alike, for instance in school attainments, whereas the fraternal pairs are likely to become more differentiated with increasing age. The effect of such differential treatment is an increased difference between intra-class correlations for the respective twin categories (as can be seen from the formulas proposed) and this tends to increase the estimation of heritability (Husén, 1963).

3. What environment can "achieve" is assessed by comparing identical twin pairs reared together and apart. The size of the intra-class correlations evidently depends on the degree of difference between the environments in which the partners in identical pairs adopted in separate homes have been reared. The

question then arises, to what extent the differences between the homes in which the partners are reared average the same as the differences between any pairs of homes compared at random. To what extent has selective placement occurred when the twin partners are adopted in different homes? Jensen (1969, p. 51 f.) seems to assume that the environments of identical twins reared apart are uncorrelated, and so does Burt (1970).

4. Heritability estimations derived from twin studies should, of course, be based on <u>representative samples</u> in order to allow generalisations in the first place to twins in general and, under certain assumptions, to single-borns. As has been indicated by Schacht-Breland (1971), Jensen's calculations of heritability are based primarily on investigations by Burt (1958, 1966) and a survey of 14 studies of identical and 11 studies of fraternal pairs by Erlenmeyer-Kimling and Jarvik (1963). If three large and, at least in two cases, representative twin samples are included and the correlations are weighted according to sample size, a lower median value for the identical and a higher one for the fraternal is obtained. This means that the heritability estimate obtained by Jensen (1969) is reduced from .80 to somewhere between .40 and .60 (Schacht-Breland, 1971).

All this leads to the key question: to what extent is it justifiable to generalise from findings within a twin population to the population of single-borns? Jensen (1969, p. 50) presents a diagram from Erlenmeyer-Kimling and Jarvik (1963) with median values for correlations between individuals with different kinship (unrelated individuals, siblings, fraternal pairs and identical pairs) brought up together and apart respectively. He tells the reader to note the consistency of the difference between those reared apart and those reared together. He seems to have forgotten that a difference between two correlation coefficients, of the order of say .15, accounts for quite different amounts of variance at the level of .75 to .90 than at .35 to .50 or .00 to .15.

4. A CONCLUDING NOTE ON THE NATURE-NURTURE CONTROVERSY

Since it is the task of the educator to bring about worthwhile changes in a growing or grown-up individual and since modifications due to environmental influences, and not those due to genetical influences, are the ones that are accessible to direct observation and measurement, it would seem that the burden of

proof as to how genetic factors act as restraints to educational endeavours rests with the advocate of the hereditarian, not the environmental, view. From the environmentalist's standpoint the problem could also be stated as follows: Environmental influences on mental development are the only ones that can be subjected to empirical study after the conception (eventually the birth) of the individual. These influences can be assessed by continuously more refined techniques developed in the behavioural sciences. Therefore, what remains of our ignorance after the environmental factors have been assigned their "share" could fittingly be termed 'heredity'.

It should be kept in mind that even a modest margin of educability due to environmental influences may be of great significance. With a heritability for IQ of .80 (Burt, 1966; Jensen, 1971), a change of 10-15 IQ points is within practical reach for educational influences. If the heritability is only .60, which is quite plausible according to other methods of determining it, the margin of educational "manipulation" increases considerably. In the Malmö longitudinal study the effect of formal schooling from the age of 10 to 20 was analysed (Husén, 1950). The average increase due to length of formal schooling during that period amounted on the average to 10-16 IQ points depending upon the method employed. Within the range of the total IQ variability, 15 points could be of decisive significance. A score of 125 instead of 110 on a scholastic aptitude test could decide whether a student is eligible for higher education or not.

5. COGNITIVE RACE DIFFERENCES

The touchy issue of whether whites are more "intelligent" than Negroes or whether upper-class students are more "intelligent" than lower-class students could a priori be regarded as a pseudo-problem, because the answer could logically be derived from the way the problem is posed.

We have earlier tried to spell out the operational implications of the way so-called intelligence tests are devised. Almost throughout, they measure abstract, verbal ability or ability to deal with various kinds of symbols. They are almost throughout validated against school criteria, such as teacher ratings, grades, and examinations. Sometimes they are validated against occupational criteria, such as ratings by superiors. All these

criteria are derived from certain, either generally accepted and/or dominant values, that determine the "power structure" in contemporary society. If we keep in mind that intelligence is defined by the dominant socio-cultural reference system, and that in the value structure guiding the system over-riding priority has been attached to the ability to succeed in scholastic pursuits, one should not be surprised to find that upper-class students have higher IQ's than lower-class students or that whites perform better than Negroes.

Jensen himself quotes Duncan's (1968) study on socio-economic background and occupational achievement where it is stated that "'intelligence' is a socially defined quality... Had the first IQ tests been devised in a hunting culture, 'general intelligence' might well have turned out to involve visual acuity and running speed, rather than vocabulary and symbol manipulation". (Quoted after Jensen, 1969, p. 14.) Later Jensen (ib. p. 19) states that the "predominant importance of intelligence is derived, not from any absolute criteria or God-given desiderata, but from social demands."

When dealing with the problem of race differences in IQ and scholastic achievement Jensen (1969), on the basis of empirical evidence, makes the following statement:

"There is an increasing realization among students of the psychology of the disadvantaged that the discrepancy in their average performance (i.e. Negro as compared to White population) cannot be completely or directly attributed to discrimination or inequalities in education. It seems not unreasonable, in view of the fact that intelligence variation has a large genetic component, to hypothesize that genetic factors may play a part in this picture." (op. cit., p. 82).

Existing surveys of IQ distribution show fairly consistently that Negroes score, on the average, one standard deviation below whites on most intelligence tests, be they verbal or non-verbal. If correction is made for socio-economic level, the difference is reduced from 15 to 11 IQ points (ib., p. 81). The Coleman survey (Coleman et al., 1966) of representative ethnic and racial groups in the United States shows that Negroes score about one standard deviation below the average for whites throughout the entire regular school, i.e. from grade 1-12. If 11 IQ points reflect the "true" average difference between the races (corrected

for social factors) this means, then, that about 12 per cent of the total variance on IQ tests could be accounted for by differences between races.

The logic advanced in proving that racial differences in cognitive performance have a "large genetic component" could of course also be employed in analysing social class differences. We consistently find that upper and middle-class students score considerably higher than working-class students on all kinds of tests. The difference usually amounts to 10-15 IQ points (Terman & Merrill, 1937; Husén, 1950; Anastasi, 1958). Does this, then, mean that some 10-15 per cent of the IQ variance could be accounted for by genetic factors?

Jensen, in his studies of sub-population differences, operates throughout with two different types of cognitive processes, labelled Level 1 and Level 2 learning. Level 1 learning is by and large the associative learning, often referred to in the literature as "rote learning". A very simple test of it is the Digit Span, i.e. how many digits an individual can repeat immediately after having had them read to him. The Level 2 learning has to do with abstract problem-solving. The ability to carry out such processes is generally measured by traditional intelligence tests. IQ is therefore regarded as an index of the ability to carry out Level 2 learning. Jensen has found, as others have, that there are considerable race differences in Level 2 learning, but almost negligible differences in Level 1 learning. He assumes that high Level 1 learning is a prerequisite for high Level 2 learning. He is further convinced that Level 1 and Level 2 learnings have quite different biological bases, Level 1 learning being dependent upon the biochemical conditions in the brain, whereas Level 2 learning leans more on its structure and neural connections. The two processes are considered to depend upon two different genotypes. Jensen holds that white school children are genetically superior to black school children in Level 2 learning. This explains why for instance attempts to employ compensatory education, such as the Head Start, have failed.

Independent of the genetic speculations and of the empirical evidence that can be produced pro or con, the same kind of simple logical analysis can be applied in this case as we used for race or social class differences. Level 2 learning is the highest valued cognitive ability which is clearly indicated by the fact that it is more or less identified as IQ. Level 1

learning, "rote learning", has a much lower status which is throughout characterised by its low correlation with criteria of scholastic and occupational success. Thus, one should not be surprised to find that socially or culturally-privileged children score much higher than lower-class children on problem-solving tests, whereas the difference is small or non-existent on associative learning tests.

Guinagh (1971) has subjected the Jensen model of the structure of intelligence to empirical test. A Digit Span test was used as a measure of associative learning and Raven's Progressive Matrices for Level 2 learning, i.e. problem-solving ability and abstract thinking. Among whites there were no Level 1 differences between children from lower and middle-class background, whereas the low socio-economic blacks scored on the average one-half of a standard deviation lower than the whites. The differences in Raven's Matrices were considerable; low socio-economic blacks scored almost twice the standard deviation below low socio-economic whites, who in their turn scored about one standard deviation below middle-class socio-economic whites. Among middle-class children the correlation between associative learning ability and problem-solving ability turned out to be quite high, whereas it was rather low and curvilinear among lower-class children with a minority of those with high associative learning falling into the category of good problem-solving ability. This, then, casts some doubt upon the Jensen model of the organisation of intellect and his theory that high associative learning is a prerequisite for high problem-solving learning.

6. THE STRUCTURE OF ABILITIES

In psychological folklore there are two major types of ability: practical-vocational and academic-theoretical. The former type is believed to suit manual occupations (tangible and concrete), whereas the latter type gets along more easily with the printed and written word and feels at home in the thin air of abstractions. The two types of ability have, furthermore, been traditionally conceived to stand in a compensatory relationship to each other. The person with an academic bent is thought to be clumsy and out of place in the world of concrete realities, while the opposite is the case among those with a practical bent. In the old Latin school many teachers advised students who were

not very successful to return to the plough, behind which their future was predicted to become more successful than behind a desk.

Modern differential-psychological research has not been able to find a compensatory relationship between so-called practical and so-called academic or scholastic ability (see e.g. Vernon, 1950; Elmgren, 1952). On the contrary, they are positively correlated, admittedly at a modest level. An individual who performs well academically (i.e. is successful in handling words, figures and abstractions) also tends to perform well in practical, concrete tasks. In our modern, complex technological society with its increasing demands on educated ability and the progressive "academisation" of what earlier were unskilled occupations, we can note a tendency towards an even closer relationship between the two types of abilities. This is also reflected in the programmes and curricula of the secondary schools. The previously rather marked dualism between vocational and academic programmes and tracks is now yielding to a merged comprehensive programme. The development in Sweden can be cited as an illustration. For a long time admission to the gymnasium (to the university-preparing 3-year stage) required an academic programme during the last grades of the 9-year comprehensive school. At any rate, the student was required to complete the academic track in grade 9 in order to qualify for gymnasium entrance. In order to qualify for university entrance the student then had to complete the gymnasium. Those who had completed the two-year continuation school (fackskola) or vocational programmes of varying lengths were as a rule not eligible for university entrance. This has now changed, so that each of the four programmes in grade 9 qualifies for the new gymnasium, which is a merger of the old gymnasium, the continuation school, and the vocational schools. The new gymnasium in its turn qualifies for entrance to most post-secondary education institutions - in principle at any rate, for the prospect depends upon the ratio of applicants to the places available.

When using the term "ability" in this monograph, we are mainly referring to scholastic ability. In doing so, we are by no means expressing any arbitrary preference of our own. This would be entirely incompatible with the relativistic and operational conception of abilities that we have developed in Chapter 1. Suffice it to indicate that we are here dealing with ability in its relationship to the educational system and the extent to which equality of educational opportunity in succeeding in that system depends upon differences in abilities affected by socio-economic background.

7. CRITICISM OF THE CONCEPT OF "TALENT"

Is it justifiable to conceive of "talent" or "intelligence" mainly as academic talent - that is, the ability to move ahead in the formal educational system? John L. Holland, former Director of Research for the National Merit Scholarship Corporation, and his co-workers have repeatedly challenged the use of the concepts of "talent" and "loss of talent". In an article in "Higher Education" spelling out a "plan for practical action and research", Holland and Astin (1962) point out some of the "fallacies and limitations" of the current definitions of them.

The major objection raised is that "talent" is defined in terms of school grades (marks) or aptitude test scores. Such definitions are far too narrow and to a large extent out of context. The authors propose a criterion-oriented approach which defines talent in terms of "socially relevant performance". "Talented performance, the criterion, consists in achievement or action which is judged to be of intrinsic value to the self and to society. Such a designation of talented performance, of course, requires value judgments regarding what kinds of human performance are more important to society than others." (op.cit., p. 78.).

Apart from their lack of criterion-reference, the conventional scholastic aptitude tests are criticised as measures of talent because they limit themselves to one type of talent and leave out non-intellectual, including motivational, factors. Talented performance is said to be one that is of value to the self and to society. However, what is valued by the self may be quite different from what is particularly valued by society. The major point in Charles Reich's (1970) analysis of the changing value priorities among American youth is that "Consciousness II" is concerned with conformity to the values of the big organisations, of the established society, whereas "Consciousness III" has its focus on values conducive to self-realisation, for instance the pursuit of interests in art and music. It is self-evident that in our present society, with its emphasis on "Consciousness II" values, the academic attainments in terms of school grades, examinations and degrees play an increasingly dominant role within the meritocratic pattern. Thus, it is not easy to make a strong case for a minimisation of academic performances when defining "talent" as "socially relevant performance".

Holland (cf., e.g., Holland and Nichols, 1964) has several times made a case for a wider conception of talent. He and his co-workers have devised a series of instruments, both cognitive and affective, for predicting academic and extra-curricular performances among students of superior scholastic aptitude. The students were among the National Merit Scholarship finalists and therefore consisted of an extremely select and homogeneous group - a fact that should be taken into consideration. Because of the great intellectual homogeneity, one could expect non-intellectual variables to be much more predictive than in a representative group. This turned out to be the case. Correlations were computed between all the predictors established in the senior high-school year and seven criteria of academic and extra-curricular accomplishments. Non-intellectual predictors tended to predict college extra-curricular accomplishments in fields such as art, music, writing and leadership as well as grades in high school predicted academic performance in college. Holland and Nichols themselves point out that the group they studied is far from being representative and that the findings therefore cannot be generalised to representative groups of students (op. cit., p. 63).

To the extent that the criticism of the concept of "talent" is valid, the concept of "loss of talent", frequently used during the 1950's and the beginning of the 1960's, has its shortcomings. Holland and Astin (1962) rightly emphasized that the fact that a high-school senior with high grades or aptitude scores is not going to college does not necessarily mean that his talent or talents are "lost". He might have another type of talent that is more developed and more cultivated by a higher level of interest and motivation than his academic potential. Furthermore, the usual conception of "loss of talent" takes for granted that the only socially useful talent is the one that helps one to go ahead in higher education. They therefore propose that loss of talent be defined as "the non-utilization of those personal capacities which are necessary for the occurrence of socially significant performance" (op. cit., p. 79).

Again, it should be emphasized that in the modern technological society, both in socialistic and capitalistic systems, the ability to reach high levels of attainment in the formal educational system increasingly tends to become a prerequisite for a successful adult career according to "Consciousness II" values. Those who are able to make socially-recognised careers in fields

such as art and athletics are rare exceptions. Even in the Soviet Union, a young person who sets out to become an engineer by getting into a good institute of technology has a much greater likelihood of success than the one who wants to become a professional ballet dancer.

Chapter 3

ASSESSING THE RESERVE OF TALENT

1. THE MAJOR MOTIVES: DEMOCRATISATION, INTERNATIONAL COMPETITION AND ECONOMIC DEVELOPMENT

The attempts to assess the size of the "reserve of talent" or the "pool of ability" (see, e.g., Halsey, 1961) in the 1940's and 1950's were chiefly inspired by the two following motives. Several surveys of the social background of academic secondary-school graduates and university students in Europe as well as high-school seniors and college entrants in the United States demonstrated that there was a strikingly low participation on the part of working-class youngsters. Even assuming that assortive mating and/or correlation between innate ability and social mobility have brought about hereditary differences between social classes, the huge discrepancies revealed by the surveys could by no means be accounted for entirely by genetic factors. This conclusion was supported by data available from testing programmes embracing complete age cohorts, such as army classification tests or scholastic aptitude tests given, for instance, in connection with transfer from elementary to secondary school in England, or in admitting students to college in the United States.

The existence of a "reserve of talent", defined as the ratio of those of lower-class origin with superior school performances or scores on aptitude tests who did not enter higher education, was seen in several countries in the 1940's and 1950's as a striking indication of inequality of educational opportunity. The identification of talent, the assessment of the potential supply of various types of talent, and the facilitation of students from less-privileged backgrounds to get into academic secondary school and into university was regarded as an act of social justice. It was felt that public action should be taken to provide economic support to those who would otherwise hesitate or refrain from realising their potential. Such democratisation of higher

education and the establishment of equal access to it was the main motive behind the surveys carried out by the Royal Swedish Commission on Student Finance (Studentsociala Utredningen) which submitted its main report to the Government in 1948. (SOU 1948: 42)

In the United States, until the beginning of the 1950's, a more individualistic approach was adopted. It was up to the individual to decide if he wanted to "make use of" his ability - in other words, whether or not he wanted to embark upon an advanced education, which in practice meant going to college. It was also up to him or his family to finance the endeavour if he wanted to go. But under the impact of increased international tensions during the cold war, and particularly as a reaction to the "Sputnik-shock", the "search for talent" (C.E.E.B., 1960) rapidly became a national top priority. It is typical that the first strongly implemented Federal programme (apart from the G.I. Bill) to support college attendance for needy students was provided under the misleading name of the National Defense Education Act in 1958.

There was also a third important motive behind "talent hunting" and the implementation of programmes to support advanced education for able students from less-privileged homes. At the O.E.C.D. Policy Conference on Economic Growth and Investment in Education in 1961, the Chairman stated two reasons why governments should provide more resources for education. "The first is that mankind is entering a new and bolder environment where poverty need no longer exist and where education is the vital prerequisite for clear thinking by democratically governed peoples." (O.E.C.D., 1962, p. 5). The second factor, which was much more strongly emphasised by all the participants and was regarded as the major reason for holding the conference, was that governments, when formulating their strategy for education, should take into account "that science and technology have released forces which are of staggering power and that human beings must benefit from a better education than in the past if they are to harness these forces to the well-being of their countries." (ib., p. 5).

In Chapter 1 of Professor Svennilson's background report on Education and Social Welfare, education is singled out as an important factor of production: "Economic growth is generated not only by real capital in the form of tools and machinery, but also by men. And just as technological improvements increase the efficiency of machinery, so education increases the efficiency of

manpower." (O.E.C.D., 1962, p. 23). Under the section on "The Pool of Ability" in the chapter on problems of policy-making, the same author makes this statement: "One thing that can be said with some confidence to those who fear the effect of quantitative expansion on quality is that there is certainly a much larger 'reservoir of ability' that has yet to be tapped. Even in the United States qualified observers would hesitate very much to say that the large section of each age group that goes to college is approximately co-extensive with those that ought to go in terms of ability. In almost all European countries the reservoir of untapped talent is much larger than in the United States." (ib., p. 34).

Later during the same year the Office for Scientific and Technical Personnel of the O.E.C.D. organised a conference in Kungälv, Sweden, on Ability and Educational Opportunity (Halsey, 1961). A clear indication of the focus of this conference can be derived from the fact that several of the papers dealt in one way or another with the problem of "reserves of ability". Dael Wolfle (Halsey, p. 49 et seq.) reported on national resources of ability. P. de Wolff and K. Härnqvist presented surveys conducted in the Netherlands and Sweden respectively and dealt extensively with the methodological problems encountered in carrying out such surveys (Halsey, p. 137, et seq.).

Wolfle begins his paper for the Kungälv conference by stating that provision for educational opportunity for everybody, irrespective of social and economic background, is inspired by a basic democratic ideal. "A free society holds as one of its basic ideals the right of each person to develop to his full capacity."(ib.,p.49). He goes on to say that this ideal has now been reinforced by economic necessity. In the main working document, which introduced the theme of the conference, the organisers stated that "countries may not be able to sustain economic growth unless all the reserves of talent in the population are actively sought out and attracted into needed educational channels."(ib.,p.49).

In the 1950's and 1960's the serious shortage of highly-trained manpower, in spite of soaring college and university enrolments, brought about a firm conviction that society had to see to it that the talent potentials (which, in fact, meant academic potential) of all individuals were brought to a maximum realisation. The following quotation is typical of the rhetoric in the United States during the cold war era: "If we as a people hope

in the next few years to build a safer highway system, develop longer-range guided missiles, and construct good school and adequate houses for all who need them, we shall be hampered less by shortage of cement, of assembly lines, or even of money than by a shortage of the necessary engineers and other technical experts." (Stice, et al., 1956, p. 1).

The "Sputnik shock" was a propelling factor that accelerated a development which, however, had begun earlier, namely a realisation that education was needed as a key production factor and that the quality of the educational system left several things to be desired. Thus, the National Science Foundation had supported surveys which aimed at mapping out the reservoir of able high-school students who were potential scientists and engineers. The National Research Council sponsored jointly an extensive survey which was directed by Dael Wolfle (1954) who estimated that only about half the academically most able (top 10 per cent) high-school students in terms of test scores and grades entered college. This figure caused quite a lot of concern in the United States and was used to substantiate the notion in many quarters that a considerable "wastage of talent" took place. We shall come back to Wolfle's study in the survey of research on the reserves of talent to be presented later. A nationwide study in the United States was conducted in 1955 by the Educational Testing Service (ETS, 1956-57) and a questionnaire was administered to the top 3 per cent of the twelfth-graders. The top third of these were then singled out as a high-ability group for special analyses.

We shall not attempt here to cover all the relevant research that pertains to the "reserves of ability" let alone the attendant methodological problems with which researchers have tried to come to grips. We shall confine ourselves, rather, to the two main surveys in the United States - the one sponsored by the four National Research Councils at the beginning of the 1950's, and Project Talent which was launched at the beginning of the 1960's. We shall also include recent research carried out in Europe, particularly in Sweden.

The first large-scale, national surveys that set out to assess the size of the "reserves of ability" were carried out in Sweden as early as the 1940's and they had a strong influence upon policy making (Husén & Boalt, 1968). It is worth mentioning that the very term "reserve of ability" was coined by

Dr. R. Edenman, who later became Minister of Education, in an address at the Conference of the Confederation of Swedish Student Unions in 1948. As chairman of the 1955 University Commission, Dr. Edenman later instituted another national survey (Härnqvist, 1958) which methodologically represented a breakthrough. Thus, Sweden after 1945 presents an interesting case of how survey research was part of and had a strong impact on policy-making. The fact that a long series of investigations from 1946 onwards had such an impact did not mean that they were all commissioned from the beginning as "decision-oriented" projects. On the contrary, most of them were initiated by the researchers themselves. Furthermore, they stimulated fruitful methodological development. After having summarised the most important research on reserves of ability in the United States and Europe it will be relevant, therefore, if we consider the development of Swedish research in this particular area in more detail.

2. ADEQUACY OF THE CONCEPT "RESERVE OF TALENT"

The rapporteur at the O.E.C.D. Kungälv conference, Professor C.H. Halsey, in his review of the conference suggests that the metaphor "reserve of ability" or "pool of ability" should be abandoned, because it would be "scientifically misleading" and "from the point of view of policy, irrelevant" (Halsey, 1961, p. 23). It could easily be misleading because it suggests the existence of a genetically fixed amount of qualities that set certain limits in the same strict sense as does a container from which liquid is tapped. Furthermore, by using the phrase in the singular, one overlooks the fact that there is "a whole range of human skills and excellencies, literate, numerate, and manual" beside the academic one (op. cit., p. 24).

Halsey points out in another section of his report that we have now become aware that social background or social stratification should be conceived of more as a major factor determining educability than as a barrier to opportunity (op.cit., p. 33). This, then, means that the important aspect of equality is not so much the formal opportunity as the preparation the child receives to take advantage of opportunity. Thus, the phrase "reserve of ability" makes us blind to the fact that ability can be generated by a concerted social and educational policy:"..a process of economic and social development is a process of creating ability" (op. cit., p. 24).

However, since the beginning of the 1960's, the term "reserve of ability" has come into extensive use in international literature so we shall use it here, but with the caveats expressed in the introductory paragraph to this chapter. The criticism that talking about "reserve of ability" in the singular limits the view to academic ability is valid; but as long as the empirical approach to the problem is made within the framework of the formal school system, and as long as success in that system is a prerequisite for social success in modern society, such a limitation of view to academic aptitude is justified.

3. SURVEYS OF THE "RESERVE OF TALENT"

a) The Commission of Human Resources and Advanced Training survey

The Commission on Human Resources and Advanced Training analysed the scores on A.G.C.T. (Army General Classification Test) for freshmen at 41 colleges (Wolfle, 1954, p. 144 et seq.). Since the norms for A.G.C.T. were derived from nearly complete age groups, the distributions of scores among college entrants could be related to ones for the corresponding age cohorts.

A striking feature, that has later been confirmed by several other surveys, is the tremendous intellectual diversity among American college entrants, to which there is almost no parallel in most European countries with their centralised systems, uniform admission requirements, and examinations. Some colleges were very selective so as to have all their graduates above the average of all college graduates. The Commission estimated that 59 per cent of the top 1 per cent on A.G.C.T., 49 per cent of the top 5 per cent, and 34 per cent of the top 20 per cent graduated from college.

The Commission further estimated that 53 per cent of the high-school graduates who belonged to the top 20 per cent in terms of grade point average entered college, as compared with 17 per cent among those in the bottom 20 per cent. The fact that only about 60 per cent of the high-school graduates who scored in the top 5 per cent group on the A.G.C.T. and had grade point averages in the top 20 per cent entered college indicated that a considerable reserve of ability existed. That those who belonged to the reserve came mainly from lower socio-economic strata was made clear when educational careers were related to fathers' occupations. The Commission arrived at the estimates shown in Table 3:1.

Table 3:1

College Entrance and College Survival as Related to Father's Occupation

Father's Occupation	Percentage of High-School Students Who Enter College	Percentage of College Entrants Who Graduate from College
Professional and Semi-Professional	67	60
Managerial	50	55
White-Collar Workers (Clerical, Sales, Service)	48	57
Farmer	24	44
Factory, Craftsman, Unskilled, etc.	26	58

Source: Wolfle, 1954

This table illustrates two marked tendencies. Firstly, socio-economic selectivity operates strongly in the context of college entrance. The "ability reserve" is to a large extent to be found among high-school students whose fathers are farmers or workers, a finding that has universal application. Secondly, once the students have entered college, socio-economic background seems to play a minor role in arriving at a degree. Several other studies, some of them reported in Chapter 4, indicate that the socio-economic barriers operate much more strongly at the entry to a certain stage than during that stage (Boalt, 1947).

The Commission's figures were estimates for 1952-53 built upon extrapolations from actual figures derived from 1949. Bridgman (C.E.E.B., 1960) made a comparison between the estimates and the actual outcomes and showed that the Commission had underestimated the number of college entrants. The "explosion" turned out to be more intensive than was anticipated (see Table 3:2).

Table 3:2

Estimated and Actual College Entrance

A.G.C.T. Scores 118 and Above (top 20 per cent of age cohort)	Commission Estimate	Actual Outcome (Bridgman)
Percentage of high-school students going into college	48	62
Percentage of college entrants in age cohort	44	58
A.G.C.T. scores 131 and above (top 6 per cent of age cohort)	54	69
Percentage of college entrants in age cohort	53	68

Source: C.E.E.B., 1960

b) Project Talent

One of the major objectives of Project Talent (Flanagan et al., 1964) was to survey available talent in American high schools to provide an estimate of the available manpower pool, particularly in certain key professional fields. Since the survey was planned during the Sputnik era, the sponsors had such fields as science and engineering primarily in mind.

The project set out to identify the aptitudes, interests, socio-economic background and motivation among high-school students and to study particularly what effects lack of interest and motivation had on further study. The project is thus of greatest interest to the student of research on the reserve of ability.

In 1960, a probability sample of 292,000 students in grades 9-12 were given aptitude, ability, achievement and interest tests. In addition to those the subjects had to complete a Student Information Blank. Sixty test score variables were obtained. Four measures of aptitude were formed by compositing some of the tests. These were measures of General Academic Aptitude, Quantitative Aptitude, Technical Aptitude, and Scientific Aptitude. A follow-up by means of a mail questionnaire was carried out one year after graduation from high school. It should also be mentioned that about 10,000 students who were tested in grade 9 were subsequently retested in grade 12.

Table 3:3

Father's Occupation and Parental Education as Related to College Entrance (in per cent) among High-School Seniors

Father's Occupation	Entered College		Did not Enter College	
	Boys	Girls	Boys	Girls
White-Collar	51	54	21	22
Blue-Collar	37	33	56	58
Farm	9	8	15	12
Don't Know	3	5	8	8
Total	100	100	100	100
Father's Education				
College Graduate or Higher	20	23	6	5
High School or High School plus some College	44	43	30	30
Did not Graduate from High School	32	29	55	56
Don't Know	4	4	9	9
Total	100	100	100	100
Mother's Education				
College Graduate or Higher	15	17	5	4
High School or High School plus some College	57	57	41	39
Did not Graduate from High School	25	24	46	52
Don't Know	3	2	8	5
Total	100	100	100	100

Source: (Flanagan et al., 1964.)

Of the 1960 seniors, 53 per cent of the male and 46 per cent of the female students planned to go to college immediately after having finished high school. 49 and 35 per cent respectively actually did go. 97 per cent of the graduates who scored in the top percentile bracket on the General Academic Composite entered college. The corresponding figure for the bottom percentile was 15 per cent. In the range below the medium, considerably more boys than girls entered, whereas a slightly higher frequency of boys was noted among those above medium.

There was a linear relationship between percentile rank on the aptitude tests and the presence at college after one year among the boys, whereas the relationship was curvilinear among girls. High aptitude seems to be equally conducive to staying on at college in both boys and girls, whereas among those of mediocre aptitude the tendency to stay on is more marked among boys. Among the top 2 per cent in Academic Aptitude, the drop-out rate was only 4 per cent after one year as compared with 20-25 per cent in the bottom third of the students.

Parental occupation and education were closely related to entering college, as can be seen from Table 3:3.

The twelfth-graders were asked how much education their parents wanted them to have. When subsequent entrance/non-entrance to college was related to the response, a quite close relationship was found, as shown in Table 3:4.

Among those who scored in the top 10 per cent bracket on the academic aptitude test, 14 per cent of the boys and 22 per cent of the girls did <u>not</u> go to college if their father had not completed high school. If he had completed high school, the corresponding figures were only 3 and 4 per cent respectively. If the father was a white-collar worker, 4 per cent of the boys and 8 per cent of the girls who scored in the top 10 per cent in the academic aptitude tests did not go to college. The corresponding figures for students whose fathers were blue-collar workers were 14 and 23 per cent. For those whose fathers were farm labourers, the figures were as high as 19 and 75 per cent respectively.

Thus, parental occupation and education were of great importance in influencing the decision of very able high-school graduates whether or not to enter college.

Table 3:4

Parental Educational Aspiration Related to College Entrance

Amount of Education Aspired to by Parents	Entered College Later		Did Not Enter College	
	Boys	Girls	Boys	Girls
College or Higher	86	77	35	20
High School or Less, Vocational, Business, Junior College	8	16	43	59
Don't Know	6	7	22	21
Total	100	100	100	100

Source: Flanagan et al., 1964

c) The O.E.C.D. Study on Austria (The E.I.P. project)

One of the early European studies on the "latent reserves of ability" was carried out by the Psycho-Pedagogical Service of Austria under O.E.C.D. auspices in 1964-65. The report (O.E.C.D., 1965) states three reasons why the survey was launched: (1) Children from higher social strata participate more and achieve better results in school than children of the same intellectual standing from lower strata. The report makes reference to Section 26 of the Declaration of Human Rights of the United Nations according to which every child should have access to further education irrespective of social class, economic conditions and place of residence of parents. "Inborn abilities" should decide what kind of education a child obtains. (2) Education is a decisive factor in economic growth and it is therefore in the interest of society to promote increased and equalised participation in education. (3) Promoting the development of intellectual resources strengthens a nation's capacity in international competition. Reference is made to science and technology, and space research is mentioned as an illustration.

These motives have been quoted because they are typical of the prevalent ideas at the beginning of the 1960's of how the "reserves of ability"had to be taken care of and what equality of educational opportunity meant.

The report distinguishes between two types of ability reserves: "The absolute (our underlining) reserve of ability... includes all pupils capable of successfully graduating from a school giving access to higher education, but who do not apply for such scholastic training ... The relative (our underlining) reserve of ability ... includes pupils who achieved better performances in the selection tests than the lowest 15% of children examined with the aid of the same tests and who, at the time of investigation, were already attending a general school." (op. cit., p. 12).

The following factors are mentioned as conducive to further education or acting as barriers preventing it: (1) hereditary background; (2) sex; (3) geographical factors (such as distance to school); (4) ethnic factors; (5) economic factors; (6) social factors that manifest themselves in terms of, for instance, Bildungsdruck (Dahrendorf) or la famille éducogène (O.E.C.D., 1962).

The province of Burgenland was chosen for the survey because it had the lowest participation rate of all the Austrian provinces as far as university-preparing secondary education was concerned. Hence, it could be expected to have considerable reserves of ability. Burgenland was predominantly agricultural and rural, without any big cities, which was the main explanation for the low participation rate in higher education.

The sixth school year was chosen because transfer to academic secondary education had then been completed. 4,225 children were distributed as follows:

Primary school	(Volksschule)	50 per cent
Upper primary stream	(Volksschul-Oberstufe or Hauptschule)	40 per cent
General secondary school	(Gymnasium)	9 per cent
Special school	(Sonderschule)	1 per cent

Only 9 per cent had been transferred to the academic secondary school, whereas the majority carried on in the terminal classes of the primary school. A considerable number, however, had transferred to the Oberstufe, a kind of middle school with a more advanced programme than the one in the primary school.

Achievement, intelligence and personality tests were administered to the 6th-grade students. A random sample of parents were interviewed. All parents who had children in secondary schools were included.

The methodology was rather simple. The "cutting score" method employed in the 1940's by Husén (1946, 1947, 1948) was used to obtain a measure of the size of the relative reserve of ability. The general secondary school population thereby served as a reference group. The fact that the students in that school had been admitted and had been able to stay on for a year or two indicated that they were able to profit from academic secondary education. On the scale of the composite score, the 15th percentile was arbitrarily set as the cutting score. Those who fell below that score were considered to be intellectually unfit for that kind of study. Those who scored above the 15th percentile on the scholastic test and who were not in general secondary school were defined as reserves of ability. As could be expected, the major portion of the reserves was found in the upper primary stream (Oberstufe), where 41 per cent of the students belonged to the reserves. But even in the lower stream (the Volksschule), more than 5 per cent scored above the 15th percentile. A total of about 21 per cent of those who did not transfer to the general secondary school belonged to the reserve. Roughly the same estimate was arrived at in the Swedish surveys in the 1940's, when about 15-20 per cent of an age group transferred to the realskola and 35 per cent were considered capable of passing the middle-school examination (Husén, 1948).

d) Danish surveys

In 1965 and 1968, the Danish National Institute of Social Research conducted two major surveys with the broad aim of elucidating the situation of young people at an age of 14-20. Representative samples were drawn from the target populations of 14-20 and 14-year-olds. The surveys focused particularly on the education and the career opportunities of young people. These aspects of the surveys have been dealt with by Hansen (1971) and Örum (1971). Both authors, particularly Örum, also consider the problems of reserves of ability.

Hansen (1971) devotes one section of his survey to the reserve of ability problem (op. cit., p. 42 et seq.). Like

Ekman (1951), he makes a distinction between potential and actual reserve of ability, the former being realised under socio-economic conditions which determine the development of children of upper or upper-middle class background, the latter being available under conditions present in a class-stratified society where only a minority grows up under privileged conditions. The actual reserve, then, consists of youngsters, mostly of lower-class background, who, according to some valid criterion, have the ability and/or motivation to profit from higher education, particularly at the pre-university level (gymnasium), but who have not had the opportunity to do so.

The 1965 sample of 14-20-year-olds was asked what occupation they would choose if they could make a choice in terms of what they would most like to become. 64 per cent of the youngsters with professional and managerial background indicated occupations that require at least the completion of the upper secondary school, whereas 23 per cent among those with fathers who were craftsmen or skilled workers and only 16 per cent among those of unskilled background made this choice. Only 14 per cent of the first group indicated occupations that did not require any further general education but just the completion of compulsory elementary schooling and some vocational training. The corresponding percentages for the two latter groups were 46 and 49 respectively. Since the majority of the youngsters were about to complete, or had already completed their school education, these findings confirm the theory advanced by several educational sociologists (see, e.g., Breton, 1970b) that the school serves as a stratification instrument in moulding the occupational aspirations of its students.

A simple vocabulary test was used as a rough measure of scholastic ability. Cautions in interpreting the findings are expressed by Ørum (1971). Nevertheless, by using the cutting-score approach, he arrives at the estimate that the intake to the upper-secondary school (gymnasium) could be doubled. This is in accordance with the findings of similar surveys in Sweden and Austria.

Whereas the Hansen (1971) survey includes a stratified random sample from the whole age range 14-20, the Ørum (1971) study, which was conducted in 1968, comprises only 14-year-olds who will be followed up until the age of 20. The base sample consists of a 4 per cent random national sample that includes 152 classes with 3,151 7th-grade students. The major purpose of

the 1971 publication was to elucidate the relationship between social background, ability and educational attainment on the completion of compulsory schooling which takes place at the age of 14. The follow-up part of the study is planned to continue until 1975. Until then, it will not be possible to assess the relative importance of the various background factors that determine the educational and occupational careers before the age of 20.

The socio-economic groups, according to which the sample was broken down, were:

i) Professional, managerial, civil servants

ii) Middle management and middle supervisory

iii) Supervisors

iv) Clerks, craftsmen, and skilled workers

v) Unskilled workers.

Three types of ability measures were used: (1) a group intelligence test; (2) a test of spatial ability; and (3) a test of inductive ability (number series). The difference in average score between those children with professional and managerial background and those whose parents were unskilled workers amounted to one standard deviation on the verbal test, 0.8 on the test of inductive ability and 0.6 on the test of spatial ability. The difference between those whose parents had passed matriculation examination and those who had only 7 years of elementary compulsory schooling was 0.9 of one standard deviation.

Örum (1971) is able to show that, in spite of the large difference in the proportion between socio-economic group (i) and (v), (81 versus 25 per cent transferred to or selectedthe academic track in the secondary school), the same standards in terms of intelligence test scores had been applied. The lowest decile among those admitted was even higher in group (i) than in group (v). Therefore, no more in terms of at least verbal intelligence was demanded from lower-class students than from upper or middle-class. This only proves, of course, that the intelligence test alone did not account for differences between the socio-economic groups in transfer to (or selection for) academic secondary education. Since intelligence tests in the first place were not employed as selection criteria, and considering the fact that

difference in intelligence test scores at most account for half the variance in scholastic achievement, social class bias in terms of non-cognitive factors may very well have entered into the selection procedure.

But the percentage of those admitted to the academic secondary school decreased with falling socio-economic status (from I to V) within the respective test score intervals. As can be seen from Table 3:5, this is particularly striking for students with average verbal intelligence for whom social background appears to have great influence.

Table 3:5

Enrolment in the Academic Secondary School Programme among Danish 14-year-olds, by Social Background and Test Performance

Test score interval	Social Background				
	HIGH I	II	III	IV	LOW V
- 24	-	(0)	(0)	(0)	(0)
25-34	(0)	(0)	2	5	2
35-44	(8)	(22)	17	10	9
45-54	74	61	46	36	28
55-64	96	82	68	72	59
65-74	97	95	93	93	(69)
75 -	-	(100)	(100)	(100)	-

Source: Õrum, 1971

Note: Percentages in brackets are based on less than 25 cases.

e) Dutch studies

In a methodological appendix to his and HÄrnqvist's contribution to the KungÄlv conference on ability and educational opportunity in 1961, P. de Wolff (Halsey, ed., 1961, p. 147 et seq.) spells out the rationale for his analysis of data obtained from the Dutch army classification test. He begins by making a distinction between the reserve of ability in a narrow and in a

broad sense. The former concept includes only a limited number of factors accounting for scholastic performances - mainly cognitive factors as measured by conventional intelligence tests. The latter includes all relevant factors, apart from the cognitive ones - school motivation, parental support, scholastic attitudes and so on. Furthermore, de Wolff, following Ekman's (1949) analysis of the concept, distinguishes between an actual and a potential reserve of ability. The actual reserve pertains to the situation when the decision about further schooling is made and various environmental factors have had time to contribute to the moulding of scholastic capacity. The potential reserve refers to an earlier situation, for instance at the beginning of regular schooling. Basically, it refers to the genetic assets.

Building on a hypothesis advanced by Ekman (1949), de Wolff developed a method for assessing the reserve of ability which was then used by the Dutch Bureau of Statistics. The criterion variable was Raven's matrices which were one part of the test battery given to almost complete age groups of Dutch army recruits. The distribution of test scores for each of the three social strata used in the Dutch social statistics was determined and the participation rate by test score interval was calculated for each stratum. The so-called relative coefficient of participation for the highest social stratum was regarded as the optimal, since the privileged social conditions were obtained in that stratum. By these means, de Wolff was able to assess in a broad sense the actual reserves that existed in the other social strata.

This method of de Wolff's is open to certain criticism. In the first place, the assumption that those who belong to the upper social stratum always develop their scholastic aptitude and are given opportunity according to optimal conditions can be questioned. Secondly, errors of measurement affect the estimation. Thirdly, sampling errors can enter into the picture since the medical rejects were not included in the age groups subjected to analysis. Fourthly, data are available for men only and the assumption is made that there are no significant sex differences in test score distributions. One could add to this list of critical points by observing that the hereditary factors, because of selective breeding, differential fertility, and so on, might be different for the three social strata.

The method advanced by de Wolff was applied to Dutch data to get a broad estimate of the reserve of ability for university

study. Two further assumptions were made: Assumption I that the coefficient of participation could be raised half-way between the values of the two higher social strata (upper and middle-class); Assumption II that the sex ratio in enrolment would remain constant. Estimates as shown in Table 3:6 were then arrived at.

Table 3:6

The proportion (in per cent) of an age group in the Netherlands able to profit from university studies

Social class	Actual enrolment			Potential university population according to					
				Assumption I			Assumption II		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Upper	26	10	18	26	10	18	26	10	18
Middle	5	1	3	10	3	7	10	2	6
Lower	1	0	0	5	2	4	5	1	3

Source: Halsey, 1961.

As can be seen, the potential university population decreases if one makes the assumption that the sex ratio will not change for some time. As a matter of fact, it has changed since the 1950's when the data were collected. Furthermore, the actual enrolment has increased and passed the somewhat conservative participation ratio estimated more than ten years ago.

In the 1960's, a large talent research programme under the directorship of F. van Heek of Leiden University was carried out in the Netherlands (van Heek, 1968). The aim was to identify the social factors that underlie the observed differences of participation of the various social groups in Dutch education and to explore the possibilities of modifying this participation by changing school and teaching variables. The obstacles to equal participation seemed to be strongest at the transfer from primary school to academic secondary school and to be much less powerful once access had been gained to this type of education. The project therefore concentrated on the transfer from primary to

secondary and on the progressive selection taking place during primary education. A set of hypotheses was developed concerning the participation of the different social groups in education and the different attitudes toward possible future changes in participation rates and their consequences for the educational system and for society at large.

Over the years a large number of research projects have been carried out to test these assumptions. These include: a sociological analysis of the socio-economic situation, and in particular of the social and individual integration of adults from lower social groups who had achieved a rapid social promotion; an assessment of the "talent reserves" understood as "actual school ability" (i.e. ability to complete successfully academic secondary education in its present form); a psychological analysis of the interaction between social background, educational choice and ability; and a study of the relationship between parents' social background, attitudes and so on and their children's school careers. Of the findings from these sub-projects, the following deserve particular mention.

1. Regional differences in participation in academic secondary school are strongly correlated with the regional occupational structure of the population, but differences within one and the same occupational group can be explained by differences in parental education.

2. There is no substantial reserve of "gifted children" for academic secondary schools ("gifted" being those whose chances of success are high). There is, however, a reserve of moderately-gifted pupils (those whose chances of completing this type of school successfully are moderate).

3. For the moderately-gifted, participation in academic secondary school is strongly related to parental education and to the social origin of the mother. Family budget, parental attitude towards education and the frequency of their contacts with school seem to have no impact.

4. If the educational level of the father is kept constant, "white-collar" and "manual" workers send their children in equal proportions to academic secondary school.

A pilot project carried out in a number of primary schools, however, gave strong support to the view that these findings should not be conducive to resignation. It was found

that the measured intelligence of children who have difficulties in learning to read decreases during their first years at primary school. Moreover, during primary education the differences between pupils from the several social groups for what concerns the gap between intelligence and achievement tend to increase. In an eight-week "activation" programme, it appeared possible to increase considerably both the measured intelligence and the achievement of children of manual workers. The report on van Heek's talent research programme concludes with the proposal that special schools should be opened for children from disadvantaged groups, offering both pre-primary and primary education, so as to activate their potential talents.

These findings and conclusions from the Netherlands support the view that, without drastic change, the present school system is not such as can offer full opportunities to children from the lower and lower middle groups. The proposal that such opportunities should be provided in special "compensatory" schools, however, is debatable; indeed, such schools could act as a disincentive to reform of the "regular" school system and run the risk of presenting only second-rate opportunities.

f) German investigations

The Bildungskommission of the German Council on Education (Bildungsrat) in 1966 commissioned a group of leading researchers in the fields of education and psychology in Germany to submit evaluative reviews on the present state of research with regard to the development of scholastic ability. One of the central issues in this connection was how hereditary and environmental factors contributed to the development of learning under school auspices. The entire body of research that focused on the relationship between ability and learning was considered to be of basic importance to the Commission which had to advance recommendations for changes in the structure of the German school system. The core political issue was the one which faces most other countries in Western Europe: how to change the structure and the curricula so as to bring about more equality of opportunity (Chancengleichheit). The fifteen contributions were edited by Roth (1968), who also wrote an introduction.

Aebli (1968) in his contribution emphasised that the most important reserves of ability in our society do not consist of

young people who already possess all the individual psychological assets required to get along in higher education. They consist primarily of those for whom "the conditions must be developed". Such conditions are certain basic cognitive skills, attitudes, values, style of thinking, as well as some types of motivation. "Certain pedagogic and institutional measures are required in order to bring about the realisation of these conditions." (op. cit., p. 189).

Heckhausen in his contribution outlines four basic requirements that a school system in our society should meet. One of them is equality of opportunity (Chancengleichheit): "An educational system should try to observe and try to level out the inequality of opportunity that stems from the differences in sociocultural background of the students." (op. cit., p. 211).

One of the psychologists, Wilhelm Arnold, refers to a series of studies (Arnold, 1968) which he himself had conducted on ability and educational motivation. The exposition in Roth (1968) is based upon five studies, each embracing between 40 and 77 students from grades 4, 8 and 10. The parents were interviewed to find out what aspirations they had for sending their children to the academic secondary school (Gymnasium or Oberschule). Furthermore, a measure was derived from the interview of the interest they showed in their children's education and how well informed they were about their children's schools. Questionnaires and intelligence tests were administered to the children and the teachers were asked to rate their academic aptitude with particular reference to the secondary school. School marks were also available.

Arnold did not find any significant relationship between the economic status of the parents and their willingness to let their children go on to higher education. It was possible on the basis of the interview to derive an index of motivation reflecting such willingness and an index of information which gave a measure of how much the parents knew about the school possibilities for their children, such as school types, costs, sources of information, and monetary allowances. Arnold sums up his findings in the following statement: "The major reason the parents advanced against the choice of further-going education is uncertainty, lack of information, and resignation in terms of whether the child really had the aptitude. This uncertainty is further reinforced, because the teachers, lacking standards of comparison,

themselves are in doubt about the aptitude of the children and - according to our criteria - therefore prefer to give discouraging advice. One reason for the negative decision about further education is also to be found in the lack of confidence that the parents have in the ability of their children to perform successfully, which could be found in the lower and middle social strata. The image of a Gymnasium appears to the workman as follows: relatively stern, alien, difficult, geared to men, frustrating and strenuous. The costs tend among the working class to be overestimated in comparison with other strata." (op. cit., p. 362).

The motivation for sending the children to the academic secondary school is highly correlated with the level of information about what that type of schooling implies. Interestingly enough, parental motivation correlated practically zero with the child's intelligence test score. Test score and teacher rating of academic aptitude correlated only .34.

Arnold also reports in Roth (1968) on a series of previous investigations in Germany that he and his co-workers had reviewed, to arrive, among other things, at an estimate of the size of the reserve of ability. A conservative estimate is that 3.5 per cent of those whose education terminates with the elementary school (Volksschule) possess the aptitude to go on to academic secondary education (höhere Schule). A liberal estimate gives 8 per cent. According to the same standards of estimation, the vocational schools contribute an additional reserve that amounts to 6.6 and 9.0 per cent respectively of their enrolment. The vocational school "reserve" is presumably the group that could be admitted to third-level technical education.

So far, no comprehensive survey based on representative national samples has been carried out in Germany. Ingenkamp (1968), on the basis of studies that he and others have made of the predictive value of tests used for selecting students for the Gymnasium, points out that a "considerable number of eligible children remain in the terminal classes (Hauptschule)" (op. cit., p. 415). When standardised achievements and intelligence tests are employed as criteria of aptitude, he estimates, on the basis of several studies, that of those who come out in the top quarter, between 13 and 35 per cent remain in the terminal classes of the elementary school.

A comprehensive study of students who dropped out from the Gymnasium in the Land of Baden-Württemberg has been conducted by H. Peisert and R. Dahrendorf (1967). They used available statistics for this particular type of school to elucidate the proportion of drop-outs over the ten-year period 1953-63 and made special studies of some schools with student interviews. It was quite clearly brought out that early leaving before the Abitur was related both to social background and institutional factors. The drop-out patterns varied from school to school. About 40 per cent of the intake to the Gymnasium at the age of 10 (including the grade-repeaters) completed the course of study and passed the Abitur. This figure varied from 84 per cent of those whose fathers were civil servants to 24 per cent of those with a working class background. Since, in terms of intellectual qualifications at the age of entry, these groups did not differ very much, one could conclude that there was a considerable reserve of talent among those who dropped out.

g) Swedish research on the "reserves of ability"

It has already been observed that, since the middle of the 1940's, research on the "reserves of ability" has been concomitant to the Swedish school reforms (Husén and Boalt, 1968). The 1950 Education Bill, which introduced the comprehensive school on a try-out basis, made reference to surveys carried out by Husén (1946, 1947 and 1948) and Boalt (1947), to assess the proportion of an age group capable of passing both the middle school and the matriculation examination.

Several Royal Commissions dealing with various aspects of Swedish education during the 1940's and 1950's either sponsored surveys or drew upon information already available to elucidate the extent to which students from varying home backgrounds (defined either by social class or by parental occupational status) participated in academic secondary and university education. Most of these surveys focused on how students reaching the matriculation examination or entering the university were recruited from various social strata - usually defined as upper, middle or lower class.

The 1940 Royal Commission, which had the formidable task of revising the structure and content of the entire primary and secondary system, carried out a follow-up study of students who

had entered various types of junior academic secondary schools, with particular reference to the four- and five-year realskola. The issue over which the Commission was split was whether the transfer from primary to academic secondary school should occur for all children after grade 6, when they would go to the four-year realskola, or whether some (allegedly the more able) should be allowed to transfer immediately after grade 4 to the five-year realskola (Husén, 1962). The various characteristics of these two types of school had then to be elucidated, among other things the socio-economic factors behind their respective enrolments. The Commission studied the whole population of students who enrolled in the various types of realskola as well as the gymnasium and followed them up until 1944. The enrolment by social class is shown in Table 3:7.

Table 3:7

Swedish Secondary School Enrolment in 1938 by Social Class

Social Class	Five-year Realskola (per cent)	Four-year Realskola (per cent)	Four-year Municipal Realskola (per cent)	Gymnasium (per cent)	Social Class Distribution among Electorate (per cent)
Upper	18	9	7	28	5
Middle	58	55	50	61	38
Lower	24	36	43	11	57

Source: SOU 1944:21, Government Printing Office

Still in the 1940's, the Royal Commission on Student Aid sponsored a study of the social background of secondary school matriculants and university students carried out by S. Moberg and C.E. Quensel (1949). They arrived at the percentage shown in Table 3:8.

Moberg (1951) carried out a thorough follow-through for three age groups of matriculants and studied their university and occupational careers in relation to their social background and school marks.

Table 3:8

Swedish Secondary School Matriculants and University Students in the 1940's by Social Class

Social Class	Students Registered for Matriculation Examination (per cent)	Students Enrolled at the University (per cent)
Upper	51	58
Middle	42	36
Lower	7	6

Source: SOU 1948:42, Government Printing Office, p.31

In a follow-up study by Husén (1950, 1969), when the entire male population of the city of Malmö was traced from the third grade of elementary school (age 10) via induction to military service (age 20) to occupational status at 35, it was shown that enrolment in the academic type of secondary school was very unequally distributed through the social strata. The percentages of further schooling within the four socio-economic groups in which the population was divided are shown in Table 3:9.

Table 3:9

Transfer to Academic Secondary Education in the City of Malmö from 1938 to 1948 by Social Class

Social Class	Further Education		
	in Secondary Academic School	in Realskola only	in Gymnasium (per cent)
Upper	85	24	61
Middle	40	30	10
Upper-lower	22	13	9
Lower-lower	12	9	3

Source: Husén, 1950

It was also shown in the same study that the opportunity of entering academic secondary school correlated with the number of children in the family (Table 3:10).

Table 3:10

Transfer to Academic Secondary School in the City of Malmö 1938-48 by Size of Family

Number of Children in the Family	Any Kind of Further Education in a Secondary Academic School (per cent)
1	40
2	34
3	24
4	20
5-10	12

Source: Husén, 1950

Neymark (1961) conducted what has become a classical survey of migration in its relation to social and geographical background, education and tested intelligence. This investigation was based on a 10 per cent sample of the total age group of conscripts, comprising practically all males born in Sweden in 1928. The first series of data was collected in 1948. He computed the number of sons from various occupational categories who had passed the university-qualifying matriculation examination and the examination from the realskola (lower secondary school). As can be seen from Table 3:11, the differences are striking.

Findings like those presented in Table 3:11, showing a high "over-representation" of students from upper or middle-class homes in the academic type of secondary school and among entrants to the university gave rise, of course, to the question of the extent to which a "talent reserve" existed in the lower social strata. There was no reason to believe that the working class, which makes up more than half the electorate, could not provide more than 10 per cent of the university students, while the upper-class (less than 10 per cent of the adult population) produced from three to five times as many.

Table 3:11

Number of Sons of Various Occupational Categories Going to Academic Type of Secondary School

(Investigation based on 10 per cent sample of all 20 year-olds born in 1928)

	Proportion Having passed Matriculation Examination (per cent)	Proportion Having passed Middle-School Examination (per cent)
A. Farmers:		
(1) Farm Owners	2	3
(2) Tenant farmers	2	2
B. Small-farm owners:		
(1) Farming, gardening, forestry, etc.	0	0
(2) Farm labourers with small-holdings	1	1
C. Fishermen	0	0
D. Small merchants	11	21
E. Small manufacturers and artisans	9	9
F. Building contractors	9	13
G. Repairmen	0	9
H. Taxi owners, etc.	2	13
I. Civil servants:		
(1) With university training	80	11.5
(2) Other specialised training	53	21.5
J. Managers	70	17
K. Middle and low grades of managerial posts	23	34.5
L. Supervisors and technicians:		
(1) In public service with assignments not requiring advanced general education	15	35
(2) Privately employed	8	20
(3) Foremen	3.5	14
M. Salesmen	2	8
N. Workers in public services:		
(1) Firemen, policemen, coast-guards, etc.	2	23
(2) Traffic workers (railway, bus, tramway), postmen	5	9.5
O. Skilled workers in industry:		
(1) Construction workers	2.5	7.5
(2) Craftsmen (skilled carpenters, mechanics, etc.)	3	12
P. Semi- or unskilled construction workers:		
(1) In public services	1.5	13
(2) Road workers, railway workers	0	1.5
(3) Construction workers, (building industry)	0	3
Q. Workers in industry of other categories than O and P	1	5
R. Forestry workers	0	2
S. Farm labourers (other than B(2)above)	0.5	1
T. Workers in transport and distributive trades	0	3
U. General labourers	3	3

Source: Neymark, 1952.

Moberg (1951) showed that the proportion of students from the lower social class passing the matriculation examination had been fairly constant between 1910 and 1943. Even if we assume that social mobility might have brought about a higher level of potential (hereditary) scholastic aptitude in the middle and upper classes, the difference in enrolment between them and the lower class must be accounted for by other factors, such as the earning power of the family, the level of educational aspiration of the parents and their attitudes towards higher education.

It is of interest now to take a look at a series of Swedish studies that set out to estimate the actual size of the "talent reserve", or the potential academic population. To make possible an investigation of the size of the potential academic secondary school or the potential university population, two conditions have to be met. First, comparable measures of ability, such as intelligence test scores, achievement test scores, or standardised school marks, have to be available for representative groups. Secondly, the system of registration should allow follow-up studies for a number of years. The first condition is self-evident, since no dependable estimates can be made unless ability data for representative samples of individuals are available. However, an estimate must be built also upon a follow-up of the sample in question from the moment in the school career when organisational differentiation begins until the schooling itself is finished.

The whole age group of conscripts for military service, 20 years old, provided the data for a comprehensive investigation in this field in 1945 (Husén, 1946). Complete information was collected for 44,011 individuals who comprised more than 95 per cent of the total male population born in 1925. The conscripts were given a group intelligence test composed of eight sub-tests, most of them verbal in content. The tested population was divided according to formal education into the following sub-groups: elementary school only; middle school (realskola) without leaving examination; middle school with leaving examination; university-preparing school (gymnasium) without leaving examination; university-preparing school with leaving examination; and university studies.

The test score distribution for each group was determined, as was a series of measures of spread, such as the 10th percentile, the lower quartile, the higher quartile, and the 90th percentile.

The potential academically talented school population was then estimated in the following way. A comparison was made between those who had reached the middle school examination and those who had dropped out, mainly because of failure to meet the academic requirements. Only 50 per cent of the intake in the realskola reached the leaving examination in due time. Another 10-15 per cent repeated one or more grades. The number of students not being promoted at the end of the spring semester was on average 10 per cent. If one were to omit those who scored below the 10th percentile in the leaving examination, one would have to omit also some of those with low intelligence who, by means of coaching and other artificial means, had survived the realskola and managed to pass it. A cutting score at the 10th percentile for those who had reached the leaving examination divided the distribution of those who did not into equal halves, which corresponded to the opinion held by some investigators that about half the failures in the realskola were caused by lack of intelligence and the other half by non-intellectual factors. Applying this cutting score to the distribution of the total age group and the sub-group with elementary schooling only, we found that 33 per cent of the total age group scored an IQ of 107 or above, which implies that the realskola had intellectual requirements that would fit the best-endowed third of an age group. About 20 per cent with elementary schooling only had scores above an IQ of 107. They therefore constituted the "reserve of ability" so far as the junior academic secondary school was concerned.

Applying the same procedure to those who entered gymnasium, we found that 14 per cent of the age group would have the intellectual aptitude to pass the matriculation examination (studentexamen). We could then determine how many of the tested group with formal schooling above the cutting scores for the middle school examination and the studentexamen had the potential to profit from further education. In this event, it turned out that less than half of those having these scores in the total age group had actually gone on to more advanced education. Only about a third reached the studentexamen which indicated that the potential university population was considerable.

The same methodology was applied when replication studies were carried out on the age groups from 1946 to 1948. Thus, four age groups, making a total of around 175,000 individuals, had been tested and school records collected (Husén, 1946, 1947, 1948,

1950). It should be pointed out that the intelligence test employed was completely changed from 1947 to 1948. The findings from the four age groups are presented in Table 3:12.

Table 3:12

Estimate (expressed as a percentage) of a Number of Individuals within Total Age Groups Capable of Passing Lower Secondary School (Realskola) Examination and University Entrance Examination (Studentexamen)

Age Group	Proportion of Individuals above Test Score Limit for Lower Secondary School Examination		Proportion of Individuals above Test Score Limit for University Entrance Examination	
	Within Total Age Group (per cent)	Among Those with Elementary Schooling only (per cent)	Within Total Age Group (per cent)	Among Those with Elementary Schooling only (per cent)
1945	33	22	14	5
1946	32	20	13	5
1947	32	19	12	4
1948	33	22	13	5

Since, at the end of the 1940's, the number of students actually taking the matriculation examination was about 5 per cent of their age group, one might say that the "talent reserve" would consist of at least as many as those who passed it and, in the majority of cases, went on to university. The same conclusion applies to those who passed the junior secondary school examination. This would mean, then, that a tremendous talent reserve, mainly in the lower social classes, was not used for the types of occupation for which the academic schools give the basic preparation. However, even among social scientists some doubts were expressed about the existence of a substantial "reserve of ability". The fact that only 1-2 per cent of the children of manual workers reached as far as the matriculation examination did not shake the conviction that the reserves were small (Quensel, 1949).

The methodology that has been briefly described here for estimating the relative number of academically talented young

people and assessing the extent of a reserve of such talent that lies unused has several weaknesses. These we will consider in turn.

It was pointed out by Quensel (1949) that the lack of reliability of the test used as a measure of ability constitutes a source of error. The distribution of scores for those who have passed a certain type of schooling and those who have not entered it will overlap more than would the distributions of the "true" scores because the error variance increases the overlap. This means, then, that the number of those with lower schooling who pass the critical score is inflated by low test reliability.

A much more important source of error, however, was pointed out and thoroughly analysed by Ekman (1949). A group intelligence test is far from perfectly correlated with either the level of formal schooling reached or the criteria of success in the academic school. Under favourable circumstances, the correlation ceiling is about +0.70, which means that about half of the variance in school performance can be accounted for by factors measured by intelligence tests. Ekman (1949) showed that lack of validity is a much more important source of error than lack of reliability and that it will increase the overlap between the distributions of the sub-groups and therefore contribute to an over-estimate of the size of the talent reserve. The overlapping effect will be much greater than that caused by lack of reliability.

The test was administered at the age of 20, i.e. after the differentiation in various types of schooling had taken place. Those who had gone far enough to reach the gymnasium, or had passed the matriculation examination, were tested immediately after having finished school, whereas those who had left after completing elementary school only (age 13-15) were at a disadvantage with regard to the kind of intellectual capacity measured by the test. In a ten-year follow-up study it was shown that the academic type of schooling leading to studentexamen improved the IQ by at least ten points (Husén, 1950). Härnqvist (1959), employing a more adequate technique, estimated the rise in IQ to be about fifteen points. This source of error would then tend to reduce considerably the overlap between the distribution compared and would contribute to an under-estimate of the intellectual reserve. It is therefore highly desirable to have a means of determining the level of ability before any differentiation in formal schooling has taken place.

To meet the criticism advanced by Ekman (1949, 1951) and to follow his own suggestion, one should, then, make these qualifications:

(1) The reserve in a wide sense should be distinguished from the reserve in a narrow sense. In talking about reserve in the wide sense, we include all the factors (cognitive and non-cognitive) that are related to success and failure in the academic type of education. In the above-mentioned studies we were able to assess only some of the cognitive factors, and our estimate is therefore limited to the reserve in the narrow sense. It has been suggested that this should be called the "intelligence reserve".

(2) The "potential reserve" should be distinguished from the "actual reserve". In tests administered at the age of 20, part of the individual differences are due to variations in formal schooling and to different occupational experiences during the interval between leaving school and the time when the test was administered. The ideal conditions for a study of the size of the "talent reserve" would therefore have to include access to data pertaining to intelligence and school performances at the ages of, say, 7-10, and thereafter a follow-up of the students for a period of years - in Sweden this would be to the age of 20 or 21 when most students have completed the gymnasium.

Before leaving this particular topic, we should, perhaps, notice some findings from the ten-year follow-up study in the city of Malmö (Husén, 1950, 1969). The school careers for an almost complete age group of about 700 boys were followed from the age of 10 to 20. A group intelligence test was given at both ends of the follow-up period. The group was divided into four social strata: upper, middle, upper-lower, and lower-lower. The numbers of secondary school entrants (in per cent) in each social class with an IQ above 100 or rated "above average" by the teachers are given in Table 3:13.

The most significant empirical contribution to Swedish research on the size of the talent reserve was made by Härnqvist, who conducted a survey on the reserve of ability for higher education for the 1955 University Committee (Härnqvist, 1958). In this, he was able to draw upon the theoretical conceptions advanced in the previous research, particularly by Ekman (1949), and experience already gained by others in the administration of studies of this kind. But he himself made several new contributions to

Table 3:13

Percentage of Students Entering Academic Secondary Education with IQ and Test Scores Above Average

	Upper	Middle	Upper-lower	Lower-lower
IQ above 100	77	17	12	5
Scholastic aptitude "above average" according to teacher ratings	78	22	12	10

Source: Husén, 1950

methodology in this field. Thanks to the effectiveness of registration, he could draw samples at several points in time for which retrospective data were already available and thus did not have to wait for the results of follow-up enquiries.

The school records of two groups were studied, one completing the fourth grade of the elementary school in 1945 and the other completing the penultimate grade (eighth school year) in the realskola in 1949. The sampling technique employed was stratified cluster sampling with systematic selection within strata. The elementary school group contained a quarter of the fourth grade classes in Sweden, a total of about 10,000 boys. Since Härnqvist wanted to use the test data obtained at call-up to military service, this sample was confined to boys. The realskola group contained 3,600 boys and 2,800 girls. School marks were available for the end of the fourth grade in the elementary schools and for the realskola group.

Härnqvist adopted a modification of a procedure proposed by Ekman (1951) which he called the "probability" method (see Halsey, 1961, p. 147, et seq.). Its essential points are these:

1. The assumption is made that all upper-class children who have the necessary minimum aptitude to profit from an academic secondary school actually get the opportunity to go there. Previous studies by Husén (1950) and Neymark (1952) had shown that about 85 per cent of the upper-class and upper-middle-class children had had some secondary academic type of schooling and about

60 to 65 per cent of that group had passed the university-qualifying examination at 20. There were even some with an IQ below 100 who had succeeded in getting into the gymnasium. The "probability" that, under optimal conditions, a student at a certain initial level will transfer to the academic type of school is therefore determined by the percentage of boys at each ability level within the upper social class who actually transferred.

2. The number of students at various initial levels (according to school marks) is multiplied by the probability computed at each initial level from social class 1. This yields an estimate of the number of students in social classes 2 and 3 (middle and lower) who, given the opportunities of those in the upper-class, would have the potential for transfer to academic education.

3. The "probability" that a student, having embarked upon academic training, will pursue his education to a leaving examination is derived from data available for social class 1 (upper). The assumption is, then, that in social class 1 optimal conditions govern which keep the student in school and prevent him from dropping out.

4. The numbers of students in the middle and lower social classes calculated by the process in (2) are multiplied by the probabilities arrived at by (3). This yields estimates of how many students there are in social classes 2 and 3 who have the abilities to pursue their studies to the leaving examination, given the opportunities of social class 1.

5. The numbers arrived at by the calculation in (4) are then totalled and reduced by the number of students who actually reached the school-leaving examination. The resultant figure is the estimate of the talent reserve. According to Ekman's (1951) terminology, this estimate is for the "potential reserve in the wider sense".

Two tables from Härnqvist's survey (which is reviewed in Husén and Boalt, 1968) are of special interest in this connection. Both refer to the probability of young people being transferred from one level of formal schooling to another. Table 3:14 gives the probabilities for transfer from elementary to secondary academic school (realskola); Table 3:15 gives the probabilities for transfer from realskola to the upper stage of secondary academic school (gymnasium). As can be seen, 76 per cent of the children

Table 3:14

Frequency of Transfer to "Realskola" and of Passing Leaving Examination by Social Class and Grade Points

Sum of Grades (average 13.5)	Upper-Class			Middle and Lower-Class			Entire Sample		
	Total Sub-group 1	Trans-ferred 2	Passed Leaving Exam 3	Total Sub-group 4	Trans-ferred 5	Passed Leaving Exam 6	Total Sub-group 7	Trans-ferred 8	Passed Leaving Exam 9
5.5	1	1	1	96	-	-	97	1	1
6.0 - 8.0	18	9	6	797	12	9	815	21	15
8.5 - 10.5	52	26	16	2,509	97	55	2,561	123	71
11.0 - 13.0	100	73	53	2,334	275	162	2,434	348	215
13.5 - 15.5	173	152	136	1,947	606	467	2,120	758	603
16.0 - 18.0	202	191	183	905	505	429	1,107	696	612
18.5 - 20.5	77	77	76	195	154	143	272	231	219
21.0	15	15	15	27	26	24	42	41	39
Total	638	544	486	8,810	1,675	1,289	9,448	2,219	1,775

Source: Härnqvist, 1958.

Table 3:15

Frequency of Transfer to "Gymnasium" and of Passing University Entrance Examination by Social Class and Grade Points

Sum of Grades	Upper-Class			Middle and Lower-Class			Entire Sample		
	Total Sub-group	Trans-ferred	Passed Univer-sity Admission Exam	Total Sub-group	Trans-ferred	Passed Univer-sity Admission Exam	Total Sub-group	Trans-ferred	Passed Univer-sity Admission Exam
	1	2	3	4	5	6	7	8	9
10.5	28	6	6	101	8	4	129	14	10
11.0 - 13.0	167	82	52	403	70	37	570	152	89
13.5 - 15.5	269	160	116	679	176	123	948	336	239
16.0 - 18.0	250	202	162	577	236	198	827	438	360
18.5 - 20.5	175	148	138	323	168	148	498	316	286
21.0 - 23.0	107	103	98	214	145	140	321	248	238
23.5 - 25.5	49	46	46	135	98	94	184	144	140
26.0 - 28.0	31	31	31	63	53	53	94	84	84
28.5	14	14	14	16	16	16	30	30	30
Total	1,090	792	663	2,511	970	813	3,601	1,762	1,476

Source: Härnqvist, 1958.

in the upper social strata passed the leaving examination from realskola, as compared to 19 per cent in the entire sample. No less than 61 per cent of the students in the upper-class had passed the matriculation examination giving admission to the university, as compared with only 4 per cent in the entire sample. We also notice that the probability of getting a higher education with a relatively low grade-point average is much higher for children from the upper-class than for children from the rest of the population.

Using the procedure described above, Härnqvist arrived at the following results:

1. Having actually passed university admisssion examination	8.2%
2. Having passed leaving examination from realskola, but, according to estimates, capable of passing university admission examination	4.1%
3. Having not even been transferred to realskola, but, according to estimates, capable of passing the university admission examination	15.5%
4. Having passed leaving examination from realskola, but, according to estimates, not capable of passing university admission examination	6.5%
5. Having not been transferred to realskola, but, according to estimates, capable of passing the leaving examination from realskola	17.1%
6. Not capable of passing leaving examination from realskola	48.6%
Total:	100.0%

According to Härnqvist's method of estimation, therefore, about a quarter of the boys within an age group (categories 1-3 above) had the potential to pass the university admission examination. Since only about 8 per cent of an age group actually passed it in 1956, the potential university reserve in a wide sense was, then, about one-fifth of the age group. Categories 1-5 would have been capable of passing the leaving examination from the realskola. The potential reserve in the wider sense would have been about one-third of the age group. In conclusion,

then, Sweden at the beginning of the 1950's did not develop even half of its intellectual potential or even one-third of its potential university population.

The crucial question in discussing the validity of the results obtained in Härnqvist's study is the extent to which the basic assumption itself is valid. One might question the assumption that, given the environment of the upper-class, the young people now in the middle and lower-classes (with the same initial capacity in terms of school marks) would, in fact, proceed to the academic type of secondary school and pursue their studies there as assiduously as most upper and upper middle-class students do. To be fully valid, this assumption must presuppose an almost perfectly egalitarian society for at least one generation. Research on educational motivation has shown that attitudes towards higher education, such as the willingness to encourage one's children into it and the setting of a relatively high level of aspiration, are not as closely related to the economic as to the educational background of parents. For example, 68 per cent of the sons of graduates pass the admission examination to university. The corresponding figure for the rest of the occupations included in social class 1 (upper) is 42 per cent. (It should be mentioned that, in the categorisation scheme worked out by the Bureau of the Census, all occupations requiring a university training fall into social class 1.) The quoted difference in frequency of university admission examinations in favour of the academically-trained group should be related to the fact that the non-university-trained group in the upper-class have a higher average income.

As an estimate of the talent reserve in society, as at present constituted, the figures quoted above overrate the resources; but in a Utopia, where all parents share not only upper-class economic privileges but upper-class attitudes and aspirations as well, these figures are highly likely to represent the best estimate.

Chapter 4

STRUCTURE AND SELECTIVITY OF THE EDUCATIONAL SYSTEM AS RESTRAINTS ON EQUALITY OF OPPORTUNITY

QUANTITY VERSUS QUALITY: AN INTRODUCTORY NOTE

At the end of 1950's I attended a conference in the United States on "talent hunting", a topic that at that time was a major preoccupation of American educators (C.E.E.B., 1960). One of the speakers invited presented a paper on "talent hunting abroad", mainly in Europe. He gave an impressionistic description because no quantitative measures, let alone international standards, were available at that time. He set forth the standards achieved by students in the graduating class of the academic secondary schools in several European countries, including the Soviet Union. The criticism of the standards reached by American students about to enter college implicit in his presentation evidently did not elicit any hostile feelings in the audience. What was referred to fitted almost perfectly into the masochistic concept of their own educational system that many Americans had developed during the post-Sputnik era, when the launching of the Russian satellite among other things had given such a boost for comparative education. When it came to questions, I asked for the floor and tried to bring out two points which in my view had been overlooked. Firstly, a comparison had been made between American college freshmen, who at that time comprised about 30 per cent of their age group, and the small group of European academic upper-secondary graduates who, after rigid selection and screening, in most countries comprised only 2-5 per cent of theirs. Secondly, the speaker had not mentioned the price paid in the European system (in terms of loss of talent by built-in social bias, grade-repeating, drop-out and so on) for the high quality of those who managed to survive the system and complete the course. It is by no means self-evident in evaluating an educational system that one should confine oneself to the <u>end-products</u> and by the same token disregard

the price that has been paid for these products. In evaluations that form the basis for policy decisions, the evaluative criteria are often not made explicit, and this was instanced by the case presented at the conference to which I have just referred.

Another illustration is provided by the introduction of the comprehensive school in Sweden on a try-out basis, for which provision was made by the Swedish Riksdag in the Education Act of 1950. The Bill presented to Parliament stated that "practical experiments" pertaining to the proper structure of the comprehensive school would have to be carried out for a ten-year period. The Act itself stated that the comprehensive school should be considered for universal introduction "according to the extent that the aimed experimental programmes prove its suitability". The quoted passage had been inserted in order to satisfy the conservative members who wanted the experimental period devoted entirely to a comparison between the existing secondary schools of the selective type (realskola) and the unified comprehensive school. Therefore, evaluation of the comprehensive school experiments with continuous comparisons with the existing, selective, academic school was thought of as one of the overriding tasks of the National Board of Education's Department of School Experimentation (Husén, 1962).

Yearly surveys were carried out by means of which students in the upper grades of the comprehensive school were compared with those at the same grade level in the realskola. Steps were taken to secure comparability in terms of social background and tested intelligence. The criterion variables were measured mainly by standardised achievement tests. Firstly, it did not occur to those involved that no measure of the price paid for the end products was included. Thus, only about 50 per cent of the students selected for the realskola reached the goal, i.e. passed the final examination, in due time. The drop-out rate amounted to more than 30 per cent. Both grade-repeating and drop-out were correlated with social background (Husén and Boalt, 1968). Secondly, no systematic attempt was made to evaluate the two systems in terms of the objectives stated in their respective curricula. Nobody seemed to question the logic of trying to evaluate two systems with different objectives in terms of a common set of criteria. Leading proponents of the school reform contended that the social objectives, such as the enhancement of equality of educational opportunity, were more important than the purely pedagogical ones, the imparting of certain quantities of knowledge.

I. THE OVER-ALL STRUCTURAL PROBLEM: SELECTIVE VERSUS COMPREHENSIVE SCHOOL

1. The problem of dualism in European school systems

The introduction of compulsory elementary school for the masses in many Western European countries in the middle of the 19th century created the problem of dualism which still characterises most school systems. Its result was the existence of two systems running partly parallel to each other: on the one hand, the compulsory, elementary schools with varying lengths of attendance for the masses; on the other, the secondary schools which essentially prepare for the university with a programme of a humanistic-classical type and with an enrolment less than 5 per cent of an age group limited mainly to upper and upper-middle-class children. For a long time there was in most countries no bridge at all to make transfer possible between the common elementary school and the academic secondary school. The families who wanted their children to enter the secondary school had to send them to special, mostly private, preparatory schools. In Sweden, for instance, there was no linkage at all between the two school types until 1894, when new regulations provided for transfer from the better public elementary school to the first grade of the state secondary school.

In consequence of this, a fundamental policy problem in many European countries during the last few decades has been how to reorganise the educational system so as to abolish the dualism between the common elementary school and the academic secondary school. The core issue has been the practice of having separate types of schools for students from different social classes. The urgency of the problem has been enhanced by the following trends. First of all, economic growth and the complexity of modern technological society have pressed for prolonged education (mandatory or not) for all young people, regardless of whether it is provided in an extended elementary school or is partly taken care of within the framework of a secondary school. Secondly, the rapidly expanding demand for skilled manpower has put pressure on the school systems to increase their intake at the secondary level. Thirdly, and this is an important concomitant of the democratisation of secondary and higher education, the "consumption" of or "social demand" (O.E.C.D., 1967) for education has increased tremendously.

Prolonged school attendance, however, gives rise to considerable structural problems which all have to do with the linkage between primary and secondary school. Until now, "primary school" in most Western European countries, irrespective of whether it formally consisted of six, seven, eight or nine grades, had to see many of its best students transferred to the academic secondary school after four to six grades. In fact, therefore, a primary school in most cases has been an institution that accommodates the first four to six grades, while the secondary school follows by accommodating grades 5-6 to 13. Because of the overlapping grades, the two types of school run partly parallel to each other. Since entry to the academic secondary school in some countries takes place at the age of 10-12, prolonged compulsory schooling has resulted in an increased number of grades in the two types of school. This means that in several countries an increasing number of young people in the age range of 10-15 have come to be taught in schools which have quite disparate objectives. Efforts to establish greater equality of educational opportunity, which is itself part of a social welfare policy that attempts to create greater social equality, has naturally generated demands for a more unified school organisation. In this context it is pertinent to recall that the Swedish Minister of Education, in the terms of reference he gave to the 1940 Royal Commission of Inquiry into schools, underlined the dilemma posed by a continually enlarged system of parallel schools (Husén, 1962). The same problem has impressed itself on committees assigned to deal with organisational matters in, for instance, England, France, and the Federal Republic of Germany (see, e.g., O.E.C.D., 1971b on France).

If we examine how various countries have worked out a linkage between the primary and the secondary school, we can distinguish three main systems:

1. Until recently, the public school system in many European countries, such as England, France, and West Germany, consisted of two almost completely separate sub-systems: a primary school for all or for the majority up to the age of 10-12, and a secondary school that socially, and to a large extent intellectually also, was fairly selective. (A private sub-system, such as the independent, so-called public schools in England or the Catholic schools in France, catered for a minority and covered both the elementary and secondary level.) Transfers from primary to secondary school occurred with few exceptions at the ages of

10-12. Some students never attended public primary schools but went to private preparatory ones. For the majority of students in most of these countries, such a system meant that the parents had to make an irrevocable educational decision, which in effect amounted to a choice of a career for their children at that early age. Those who transferred to the secondary school were bound for white-collar occupations at a professional and semi-professional level. Those who did not go beyond primary school were consigned to manual labour.

Structural reforms projected or implemented in countries like England, France and Germany have considerably modified, or are intended to modify, the systems to the extent of permitting the age range from 11 to 13-15 to become what in the French reform of 1959 was referred to as an "observation stage" (cycle d'observation) so that a definitive categorisation of students may be postponed. Further new types of upper-secondary school have sprung up alongside the traditional types with their humanistic curriculum with the result that the classical pre-university school no longer holds the monopoly for entry into the professions.

2. For a long time, there was no provision for secondary education apart from the pre-university Gymnasium-type school; but, at the turn of the century, various types of "middle schools" were established in several countries as a preparation for white-collar jobs, for instance for office clerks. The middle school was then sometimes made into a precursor of the upper secondary school. Thus, for instance in Sweden, provisions were made for such a sequence on two occasions - by the Education Act of 1904 when the gymnasium was divided into two levels, a realskola with its own middle-school examination and a four-year gymnasium, and by the Education Act of 1927 when those who obtained the middle-school certificate at municipal middle schools were granted entry into the university-preparing gymnasium. Other examples of middle schools being established with a profile of their own are provided by Denmark and the Netherlands. In Denmark, transfers to the pre-university school were deferred to the age of 15 or 16. In the Netherlands a "bridge-year", which coincides with grade 7 and age 12-13, was introduced in the late 1960's.

3. The third system is found in countries with secondary schools that are comprehensive both as regards enrolment, which is mandatory for all up to a certain age level, and curricula, which are vocational as well as preparing for university entrance.

The organisation of secondary education in the United States derives from two historical determinants: unlike Europe, there was no parallel-school tradition except in the old colonies (Cremin, 1970). American education had to meet particular demands of society at an earlier stage than was the case in Europe. It was expected to socialise immigrants and to satisfy the needs of a rapidly industrialised job world. Secondary schools had therefore to be created to cater for all kinds and degrees of ability.

The corollary of lessened social, and to some extent intellectual, selectivity is that much of the subject matter that in the first two types of system is taught at the upper secondary school level has been moved up to the post-secondary level. Thus, the first two years of college in the United States, or in some places all four years, offer programmes of study that are equivalent to the terminal classes at the French lycée or the German Gymnasium.

2. Selective barriers in the structure of the educational system

We shall deal more closely in this chapter with the problem of barriers or screening devices built into the educational system. By being part of the structure, these barriers prevent ability being adequately fostered. One can distinguish four major locations for such barriers:

1. In the selection of students for academic secondary education or for institutions of higher learning.
2. In the screening in terms of grade-repeating and drop-out that takes place during a given stage.
3. In grouping practices, such as "streaming" or "tracking", that bias against students with a particular background.
4. In curriculum practices that prevent the promotion of certain types of talent or students with certain backgrounds.

We shall review research pertaining to these built-in barriers or screens under three main headings:

(i) Organisational differentiation. - The structure of the education system as it concerns the age level and the extent to which the schools are organisationally differentiated. The

overriding problem in Europe during the last few decades has been how to accommodate the exploding enrolment, particularly at secondary level, within a system that can provide enough flexibility and diversity. The old dual or parallel system apparently is not able to make such provision. The political issue, therefore, has been if, when and to what extent the system should "go comprehensive". Concomitant with this problem is the question of the age or grade level at which the final selection of "academic" students should take place and the implications of this being done at an early or late stage.

(ii) Grade-repeating and drop-out as related to social background. - The major problem in establishing equality of opportunity is often seen to lie in the provision of equal access to a certain type of education. The barriers that have to be overcome in achieving this are often formidable ones indeed, and this is reflected in the substantial correlations between, for instance, admission to academic secondary school and social background. But among students who are admitted there is often a differential failure rate in relation to social background. Several extensive surveys have followed the flow of students through the various stages of the formal school system and have tried to identify factors which operate as screening devices in terms of grade-repeating and/or drop-out. Finally, we also have to take into account how the present system, mediated through the attitudes of teachers, can be biased against certain types of student and how instructional methods can favour others.

The fact that a striking imbalance exists between the various socio-economic groups when it comes to participation in upper-secondary and higher education, and the differences in educational attainments observable even in the first years of regular schooling, together raise the question of how far one is justified in talking about "barriers" that prevent children from certain social strata or geographical areas from going to more advanced education and whether one should not rather consider the extent to which the institution, i.e. the school itself, should be changed in order to reduce this bias against students from the lower classes.

At the Kungälv conference in 1961 (Halsey, 1961) the problem was still being discussed in terms of the institutional setting, its objectives, curriculum content and methods of teaching

remaining unchanged. Changes necessary to bring about greater equality were seen to lie in the non-scholastic conditions that affected student participation - for example, economic support and increase in the number of places.

(iii) Educational programmes, curriculum and grouping practices. - These are interrelated and can act as barriers to the development of certain types of ability or exercise bias against students with a particular social background. The same applies to certain methods of instruction.

a) Organisational differentiation

The key word in the vivid debate that arose from the preparations for changing the structure of the Swedish school system in the years 1948-1962 was "differentiation". What the word, in fact, signified was whether a person was for or against different tracks or programmes at the upper stage (grades 7 and 8 in particular) of the comprehensive nine-year school (Husén, 1962). The basic issue in the differentiation debate was the extent to which the traditional, prestige-loaded, selective academic secondary school should be preserved within the framework of a new school organisation. As is often the case with words that are used to denote emotionally-loaded issues, the meaning became rather blurred. Some clarification, therefore, may be in order here.

It is relevant to distinguish between organisational, or external, differentiation on the one hand and pedagogical, or internal, differentiation on the other. Organisational differentiation is reflected in the structure of the school system as determined by legislative action in parliament or a central school board. The structure as it concerns types of school, tracks or programmes is to a large extent determined by historical factors and by the social class stratification of the society in which the educational system operates. As pointed out already, the overriding problem in most European countries during the last few decades has been how to cope with dualism or parallelism in a system that is now required to accommodate a rapidly increasing number of students.

The main types of organisational differentiation are:

1. Differentiation according to type of school. There is considerable variation in the reputation or status of different types of schools. Those of high repute attract applicants and this

enables them to be more or less restrictive in their admission policy and to educate a small elite heading for the more advanced and more highly esteemed occupations. This has, for instance, been the case with the so-called eleven-plus examination in England (which, after the 1944 Education Act, was the screening device for selection to grammar school) or with the various selection procedures for the Gymnasium in the Federal Republic of Germany (Yates and Pidgeon, 1957; Vernon, 1957; Roth, 1968).

2. Differentiation according to line of study or tracks. Students may be assigned to one of several different tracks of study in the same school. These tracks are kept more or less separate in respect of curricula and instruction. Examples of this kind of differentiation are the comprehensive secondary schools in England (where the tripartite system, previously accommodated in different types of school, is now provided in one) and the Swedish gymnasium (where all the programmes - academic, semi-vocational and vocational - are provided by the same school and by the same teaching staff).

3. "Homogeneous grouping" (Yates, 1966) or "streaming". This means that students at the same grade level are grouped according to some criterion of academic performance, such as IQ or grade point average, in parallel classes. Usually there is only limited transfer between various streams and this takes place mostly from the more able to the less able streams. The students are taught all school subjects, or at least the academic subjects, within their own streams. One example of this kind of differentiation is "streaming" in the British schools where it seems to have been general practice, at least until the middle of the 1960's (Jackson, 1965).

4. Ability grouping or "setting" whereby students in the same grade are grouped according to their performances in certain subjects only and are regrouped for other subjects. This has been common practice for a long time in the American high schools (Conant, 1959). During the pilot period of the Swedish comprehensive schools, students in the upper section (grades 7 and 8 mostly) were ability grouped in, for instance, English (as a foreign language) and in mathematics according to their performance in these subjects, but they were taught other subjects together with their ordinary classmates. This kind of arrangement is sometimes referred to as "sectioning". Grouping

problems as they present themselves at international level have been extensively considered in a Unesco publication edited by Yates (1966), who also reviews the relevant research literature up to 1965. Other reviews are those by Ekstrom (1959) and Borg (1965).

The practices referred to as "pedagogical differentiation" all occur within the framework of a given class and need not have anything to do with the structure or organisation of a particular school or school system. They could therefore be referred to as "individualisation" and be defined by the methods of instruction employed. It is up to the school, and in practice therefore the teacher, to organise the work in terms of sub-groups, independent assignments, and individual tutorials within the confines of his or her own class.

b) Social and intellectual selectivity in parallel and comprehensive systems

All educational systems are, in fact, more or less selective, be it in terms of admission requirements or screening practices at the various stages, such as non-promotion, grade-repeating, or drop-out. But systems vary widely in how they employ these practices which, in most cases, only apply seriously at secondary level. In some systems there are practically no enrolment restrictions during mandatory school age. This is the case in countries where there is a common basic school which covers the entire period of compulsory attendance. When it comes to the choice of optional programmes or subjects, it is up to the student and his parents and not the school to make the choice. A school in Sweden, for instance, is prohibited by law from selecting students for the various programmes in its upper department, i.e. grades 7-9.

Systems also differ enormously in non-promotion and grade-repeating practices that are employed as early as elementary or basic school level. In France, for example, roughly one-third of the children repeat the first grade of the école primaire (O.E.C.D., 1971b). In the United States and the Scandinavian countries, grade-repeating during the first 6-9 years of schooling is almost non-existent.

As already observed, until the 1960's transfer from primary to secondary school in most Western European countries took place

at the age of 10-12. Selectivity both on grounds of ability and social background (two sets of criteria that are highly correlated) was relatively severe. The introduction of the cycle d'orientation and, later, the collège d'enseignement secondaire in France were attempts to establish more flexibility and less social bias at this stage. The Strukturplan submitted by the Deutscher Bildungsrat (1970) must also be regarded as an important step towards the introduction of the kind of flexibility provided by a comprehensive school (Gesamtschule). The Committee explicitly talks about an Orientierungsphase (op. cit., p. 73).

For a long time educators were hardly aware of the fact that all kinds of educational selectivity are correlated with social background (Husén, 1971). This meant, then, that the more selective an educational system was in terms of conventional academic criteria (school marks, examinations, and test scores), the greater was the imbalance between students from various social strata. This follows logically from the fact that the criteria of school performance are correlated with most of the criteria of social status (see, e.g., Fraser, 1959). Thus, if one sets out to "do justice" to all children by seeing to it that they are promoted strictly according to academic criteria or IQ and regardless of their social origin, the inevitable result is that their social background comes nevertheless into the reckoning.

It has been emphasised repeatedly that policy decisions about the reorganisation of school structure, for instance decisions to "go comprehensive", should be based on adequate and conclusive evidence provided by research. Both adherents to the bipartite or parallel system and those in favour of an unselective, comprehensive system unanimously endorse the idea that, before policy-makers decide to make a change or not, evidence showing whether or not this change would bring an improvement in "standard" would have to be presented. But the crucial question which unfortunately is seldom, if ever, made explicit is: what criteria should be chosen as indicators of the "efficiency" or "adequacy" of the different systems? Those in favour of a parallel, selective system tend to choose the attainments of the minority group that represents the end-product of the academic programme and disregard the rest; those in favour of a unified comprehensive system prefer as their criterion the attainments of all who enter the system and would include outcomes other than the purely academic or cognitive ones - for instance attitudes, interests, motivation to pursue further studies and so on.

In this way, the choice of criteria of evaluation reflects differences of opinion between "elitists" and "egalitarians". But even if agreement could be reached on a uniform set of criteria to evaluate the two systems, there would still be difficulty in reaching a consensus about the specific, concrete criteria that should be employed to assess the attainments of individual students. How much emphasis should be placed on the learning of "hard facts" as compared with the mastery of such skills as the ability to study independently? How should "absorbed" knowledge be weighed in comparison with the ability to learn new things? What importance should be given to non-cognitive attainments such as ability to co-operate or to take responsibility? Adherents to the bipartite system tend to appreciate skills and non-cognitive outcomes less than those in the comprehensive camp.

The comprehensive-versus-selective school issue provides another illustration of the problem, first pointed out by Gunnar Myrdal in the 1930's and recently taken up by him again (Myrdal, 1969), namely the place of implicit values in social science research. It would take us too far afield to enlarge upon this matter here, so let us leave it with the observation that the social scientist is guided by his own value priorities - not only when choosing problems to investigate, but in selecting his criterion variables also. This, however, should certainly not imply that those engaged in this research are so wedded to their value premises that they are content to work in solipsistic isolation from each other - if this were so, a researcher with a selective bias would consistently arrive at facts favouring an elitist system, whereas the researcher with an egalitarian bias would only produce evidence supporting the comprehensive system. Consensus can, indeed, be reached by carefully defining problems that lend themselves to investigations whose results can be consistently interpreted independently of value premises. Such a problem would be: In terms of scores on standardised achievement tests, in which of the two systems do students on the average score higher? Or, is it possible in a comprehensive system to bring, say, the 5 top per cent of the students in mathematics within a given age group up to the same level of performance as in a highly selective system?

The intensive debate focused on surveys and experiments carried out in connection with the structural change of the Swedish school systems is interesting in this matter of values in

research. When the 1946 Royal Commission submitted its main report to the government in 1948 and suggested a nine-year comprehensive school that would replace all other school types covering the mandatory school age, its recommendations were partly based on extensive studies of the development of scholastic abilities from 7-16 years of age (Elmgren, 1952). Everybody who participated in the ensuing debate, pro or con, was convinced that scholastic aptitude was to a large extent inherited and that it could be assessed in a valid way at the age of 11 or 12 - that is, when transfer to the academic secondary school used to take place. Nevertheless, the Commission opposed the idea of selecting students for the academic type of school or programme at that early age chiefly because this would "deprive" the other programmes of their "proper share" of talent and eventually deny the manual occupations the spokesmen they needed (SOU, 1948:27; cf. Husén, 1962). Another thing that emerged from the studies carried out under the auspices of the Commission was an indication that aptitudes for "practical" occupations tended to "mature" later than those for more theoretical pursuits.

Unfortunately, both those who were in favour of and those who were against later differentiation confused diagnosis with prognosis. It is one thing to measure actual ability, for instance to assess the child's verbal IQ at 11; it is quite another to use the score for predictive purposes, i.e. as an aptitude index. Certain measures of home environment predict attainments in the academic secondary school better than IQ and similar indices do (see, for example, Fraser, 1959). But so far nobody has suggested that some kind of social background index should be employed in selecting children for academic secondary education!

3. "Standard" achieved in selective and comprehensive systems

The term "standard" has a time-honoured place in educational folklore. It is often used in a way that implies not only that it is exactly defined but, in a way, is metaphysically anchored also. The accusation of "lowering standards" is often levelled when opportunities for more advanced education are broadened. When the selective realskola in Sweden was gradually replaced in the 1950's and 60's by comprehensive schools that provided secondary education for everyone up to the age of 16,

the new system was likewise accused of "lowering the standards". The proponents of the new system were required to disprove the contention that "more means worse" by having the new system subjected to continuous comparisons with the old one. As already said, these comparisons were carried out in terms of the end-products of both systems without taking attrition into account, and this was most marked in the selective system. Furthermore, it did not occur to those involved that the evaluations should have been carried out in terms of the objectives of the curricula of the two systems. This criticism has also been levelled with some justification against the Stockholm survey of 1955-60 in its comparison of samples of students from the selective and the comprehensive systems (Dahllöf, 1971).

"Standard" can, then, be defined in different ways depending upon whether one conceives of it in an absolute or a relative sense. Here are four possibilities.

1. Some kind of absolute and operationally defined "mastery" (Block, 1971) could represent the standard. In this case, "standard" refers to approved attainment, and those who fall below the absolute passmark are regarded as failures. Teachers are often convinced (and the opposition to the relative marking system in, for instance, Sweden bears this out) that they know intuitively where the approved absolute standard should be placed. Empirical evidence, however, shows it is inevitable that a teacher's conception will be influenced by his own particular reference group. More is required for a particular mark in a class of "bright" students than in a class of "dull" ones. But teachers seem to stick to certain ratios of passes or failures that are not really dependent on the objective distribution of performances. This, I think, explains the fact that the failure rate in examinations, or the percentage of the children at a given level who are not promoted or have to repeat the grade, varies so enormously between systems. It has already been said that grade-repeating at the primary level is almost non-existent in, for example, the United States or Scandinavia, whereas in France it hits the majority of the children. What is more, surveys of grade-repeating or performances in examinations show that the same percentage of a grade cohort tends to fail even when there has been a very large increase in participation (Orring, 1959).

In this conception of "standard" a student is evaluated in terms of whether he has passed or failed, not in terms of his position in the distribution of achievements.

2. Standards can be expressed in relative terms, that is by relating individual performances to the average achieved by a given population. One finds, for instance, that American students taking mathematics in the senior year of their high-school studies perform on the average far less well than British students at the same grade level (the upper VIth) (Husén, Ed., 1967,II). Statistically, however, cross-national assessments of standards by comparing means are far from satisfactory; one should also take national and international spread of performance into account. Secondly, the major drawback of using mean performance in a system as a national "productivity" index is that vastly different percentages of the corresponding age groups are compared. When evaluating what an educational system achieves in terms of student performance one should also take into account the "holding power" of the system - in other words: How many students are brought how far? Finally, one also has to consider the proportion of those who have been held back by grade-repeating or who have simply dropped out before the end of the course.

3. In the International Project for the Evaluation of Educational Achievement (I.E.A.), cross-national comparisons were made between student performance in the last grade of the pre-university school (Husén,Ed., II, 1967; Postlethwaite, 1967; Husén, 1971). For instance, high-school seniors in the United States were compared with Oberprimaner in the Federal Republic of Germany, sixth-formers in England and students about to take their baccalauréat in France. Among these terminal students, those who were taking mathematics in the mathematics-science stream were of particular interest. Their proportion varied from 4 to 18 per cent of the relevant age group. A comparison between systems in terms of, for instance, international percentile scores derived from the composite distribution of all the mathematics students in the terminal grade would not be fair to systems with a high holding power.

A very relevant question in this context is: To what extent is it possible within a comprehensive secondary system, such as the American or Swedish, to produce an élite comparable in size and quality to that produced within the selective systems of Western Europe? In answering this, one would be comparing equal

proportions of the age groups in the two systems instead of average or percentile scores. Such a comparison has been carried out in the I.E.A. Mathematics Study. The average performance among secondary school leavers in the different countries was compared with the average score in the top 5 per cent of the relevant age cohort - a proportion chosen because this was the lowest number of students taking mathematics in any of the twelve countries. The range between countries in the élite group appeared to be less than between the entire groups of finalist mathematicians. The American top 5 per cent scored just about the same as the students in most of the European countries with a predominantly selective and/or elitist type of secondary school system.

4. Evaluation of a system can also be carried out in terms of "How many are brought how far?" On the basis of a composite distribution for all the terminal mathematics students it was possible in the I.E.A. project to establish international percentile scores applicable to total age groups. The I.E.A. data showed that the highly retentive and comprehensive systems achieved as much, or even more, than the selective ones (Husén, 1967).

4. Educational aspirations in selective and comprehensive systems

An "enrolment explosion" at one level of an educational system seems to elicit a delayed explosion at the next level, which in its turn is conducive to another delayed explosion at the third level. For instance, the enrolment curve in Sweden for the junior secondary school from 1950 to 1960 was repeated in the senior secondary school from 1960 to 1970 and seems to be repeated again at the post-secondary level from 1965 on. The opening up of opportunities at one level increases the social demand for education at the next level. Evidence for this comes from a survey carried out by Härnqvist (1966).

The Swedish Bureau of Census, which is responsible for the collection of educational statistics, conducted a survey in 1961 comprising a 10 per cent stratified random sample of all students born in 1948. This survey was the first in a series at five-yearly intervals. Their major purpose is to obtain follow-up information that could be stored in data banks and used for evaluations of the reforms in school structure that have taken place in the 1950's and 1960's (Svensson, 1971).

The great majority of students in the 1961 survey was enrolled in grade 6 in the comprehensive school or in the corresponding grade in the folkskola, the elementary school, which still existed in about half the districts where transfers could be made to the academic secondary school. Information was recorded on school marks, scores on standardised achievement tests (which were given to all students at the end of the school year) and the occupation and education of parents. Additionally, all students in the sample completed a questionnaire about their interests, plans for further education and occupation and their attitude towards school. They also took a group intelligence test.

Since at the time of data collection about half the school districts had introduced the nine-year comprehensive school on an experimental basis, this was a unique opportunity for making comparisons between the two school systems - the "comprehensive" and the "parallel".

The students were divided into the following five categories based on parental occupation:

A. Professional (with university degrees), executives, proprietors of large enterprises

B. White-collar occupations requiring formal education up to matriculation, proprietors of medium and small enterprises

C. White-collar occupations requiring no particular formal education

D. Farmers (owners or tenants of farm enterprises)

E. Manual workers

F. No information

Students' plans as to their future education were related to social background and recorded in both kinds of district. An "academic" choice in a "parallel" district was quite clear-cut: it meant transfer from the traditional elementary school, before finishing its full course, to the academic secondary school. In the comprehensive school, however, the academic choice was not so simple. At that time it meant taking two foreign languages (English and German) instead of only one or none, and normally transfer to a class within the grade where students with academic choices were all grouped together. Future educational aspirations

were assessed by asking the students if they planned to sit for the matriculation examination that qualified for university entrance.

The number of students (in per cent) who chose the academic programmes after grade 6 was:

	Comprehensive	Parallel
Boys	58	42
Girls	66	51

Academic choices were made 15-16 per cent more frequently in the "comprehensive" than in the "parallel" districts. This raises a number of questions. To what extent was this difference due to differences in school structure per se? Had the introduction of an elective system stimulated an interest in further-going studies to a greater extent than the selective system that required transfer to another type of school? Or was the difference in aspirations mainly accounted for by differences in enrolment between the two systems? It might be, for instance, that there were socio-economic differences between the two systems. It could be that the comprehensive school districts were more urbanised and up-to-date and so had a more favourable attitude towards academic education. In fact, it was found (and for details in this as in other respects the reader is referred to Härnqvist, 1966) that the "parallel" districts were indeed less urbanised than the comprehensive ones and had twice as many students whose parents were farmers. Socio-economic background as defined in the five categories listed above therefore had to be kept under control and it was found that academic choices in all occupational categories were more frequent among students from comprehensive districts (see Table 4:1). Throughout, however, the differences between the categories are much less than between the two types of district. The most striking difference is that between students whose parents are farmers. This confirms the contention that the introduction of comprehensive education at the secondary level has considerably broadened the opportunities for students in rural areas (Husén, 1962).

Still one possible lack of comparability had to be tested. Could a "two-language programme" during grades 7-9 of the comprehensive school be regarded as comparable in academic content with

Table 4:1

Number of Academic Choices (in per cent) at the End of Grade 6 by Social Background and Type of School District

Socio-economic group	Boys		Girls		Total
	Comprehensive	Parallel	Comprehensive	Parallel	
Professionals, etc.	92	87	94	92	91
Higher white-collar, etc.	85	72	91	83	82
Lower white-collar, etc.	68	54	72	65	63
Farmers	43	26	72	41	38
Manual workers	45	32	53	40	41
No information	59	38	62	45	47
Total	58	42	66	51	52

Source: Härnqvist, 1966

embarking on realskola studies? Another test of the effect of the comprehensive school on the attitudes towards further academic studies was made by asking sixth-graders if they felt they would be capable of qualifying for university extrance by taking the matriculation examination when they reached grade 12 or 13. The numbers (in per cent) who answered "yes" were:

Boys		Girls	
Comprehensive	Parallel	Comprehensive	Parallel
27	15	28	17

Almost twice as many students in the comprehensive as in the parallel districts, therefore, envisaged matriculation. To what extent could this be due to differences in socio-economic structure of the two types of district? Comparisons once again had to be made within each of the five socio-economic categories, with the result set out in Table 4:2. Here it will be seen that, with social background under control, students from comprehensive districts much more frequently contemplated matriculation than those from parallel districts.

Table 4:2

Number of Students Anticipating
that They will Qualify for Matriculation

Socio-economic group	Boys		Girls		Total
	Comprehensive	Parallel	Comprehensive	Parallel	
Professionals, etc.	79	58	73	65	68
Higher white-collar	50	41	51	48	47
Lower white-collar	32	20	33	20	25
Farmers	12	5	18	8	8
Manual workers	13	8	16	9	11
No information	31	11	30	11	18
Total	27	15	28	17	20

This supports the view that the introduction of a comprehensive system at secondary level broadens the opportunities particularly for children from rural areas and for those with a working-class background.

5. A case study of the effects of various differentiation milieux

In 1950 local Boards of Education were invited by the Swedish Government to participate in a pilot programme for which the Riksdag made provision by the Education Act of that year (Husén, 1962). The City Council of Stockholm joined it in 1955 and introduced it first in the southern part of the city. The dual system was kept for some time in the northern part. On the South Side transfer to an academic secondary school could not take place until after grade 6, whereas on the North Side it was possible after grade 4. On the South Side at that time there were only three schools that were fully comprehensive in the sense that they provided the entire nine-year curriculum. This meant, in effect, that there was a basic six-year school on the South Side for, at the end of the sixth grade, students could either transfer to the three-year academic programme set up in their own school or to a separate three-year realskola, a type of junior

Table 4:3

Enrolment (in per cent) by Social Class (1 = upper, 2 = middle, 3 = lower) at Successive Grade Levels in the Various Types of Schools followed up in Stockholm, 1955-1960

Student Population	Social class	Grade 4	6	7	8	9
"Base" Population (entire age cohort)	1	14				
	2	39				
	3	47				
5-year realskola (traditional)	1		35	36	37	24(1)
	2		46	40	40	31
	3		19	24	23	45
3-year realskola (new set-up)	1			11	13	13
	2			49	49	39
	3			40	38	48
Combined realskola and elementary school (3-year)	1			13	14	10
	2			40	38	38
	3			47	48	42
Two-language Upper Section of Experimental Comprehensive School	1			12	13	15
	2			51	53	43
	3			37	34	42
One or No-Language Upper Section of Experimental Comprehensive School	1			4	2	
	2			31	28	
	3			65	70	
Undifferentiated Middle Section (South Side)	1		7			
	2		34			
	3		59			
"Minus-select" classes (North Side)	1		10	7	4	
	2		38	31	31	
	3		52	62	65	

(1) Transfer to the academic upper-secondary school (gymnasium) took place after grade 8.

Source: Svensson, 1962.

secondary school that had existed for some years. This set-up provided the opportunity for a unique kind of survey because comparisons could be made between students who had passed through various types of school structure.

Three different school structures could be compared in grades 5 and 6:

1. On the South Side, entirely undifferentiated elementary school classes in grades 5 and 6 where no transfer or allocation to programmes took place after grade 4.
2. "Positively differentiated", that is selected classes, on the North Side, where selection on the basis of school marks equalised on the basis of standardised achievement tests took place after grade 4. These classes are referred to as "plus-select".
3. "Negatively differentiated" or "minus-select" classes on the North Side. These consisted of reconstructed grade 5 and 6 classes which had lost the able students who had transferred to the academic secondary schools.

The structural arrangements in grades 7 and 8 were of even greater interest. Here comparisons could be made between four types of "plus-select" classes, namely:

1. Students on the North Side who had transferred to the academic (5-year) school after grade 4.
2. Students on the South Side who had transferred to the academic (3-year) school after grade 6.
3. Students on the South Side who had transferred to the three-year academic programme within their own school.
4. Students on the South Side attending pilot 9-year schools and who had opted for the academic programme.

Finally, in grade 9, comparisons could be made between students in the 9g programme, which prepared for gymnasium entrance, and students in three different academic realskola programmes.

The entire grade 4 population consisted of about 11,000 students in some 350 classes. A sample of about 25 per cent was included in a 5-year follow-up. Achievement tests in reading, writing, mathematics and English were administered on

five occasions. Additionally, a group intelligence test given at the end of grade 4 was used as a control variable in making the various groups comparable by means of analysis of co-variance.

In the context of the social selectivity of the dual system as compared to the comprehensive, Table 4:3 is of particular interest because it shows how the degree of selectivity affects the social class composition of the enrolment. The three socio-economic groups are the ones used in the election statistics by the Swedish Bureau of Census and correspond roughly to upper, middle and lower (working) class. The proportions in the so-called "base population" are given at the top of Table 4:3. 14 per cent of the parents belonged to the managerial, professional and large proprietors group, 39 per cent to what in broad terms could be referred to as white-collar workers, including semi-professionals, while 47 per cent were manual workers. The 5-year realskola, which drew most of its enrolment from grade 4, was the most selective and had the lowest representation of students with a working-class background. The 3-year realskola was less selective and had a higher representation of students with lower-class background. The most striking difference is the one found in the comprehensive school between enrolment in the academic programme and in the "practical" programme. It strongly confirms Breton's (1970b) theory, substantiated by a large-scale survey in Canada, of the role secondary school programmes play in moulding student educational aspirations in relation to their background. Lastly, the "minus-select" classes become progressively more negatively differentiated in terms of social class composition.

The majority of the secondary school teachers felt that it was much easier to teach classes of the realskola type or the two-foreign-language type in grades 7 and 8 than undifferentiated classes at the same level. This could be explained to some extent by the heterogeneity of social class in the comprehensive school as compared with the academic secondary school where the initial homogeneity was augmented by drop-out of students from less motivated backgrounds - facts that must have some relevance to the great resistance met by the Education Act of 1962 when it prohibited organisational differentiation before grade 9.

The main outcomes of this survey, as far as cognitive attainments are concerned, were the following. In grades 5 and 6 organisational differentiation did not significantly affect students from middle and upper-class backgrounds, but had a significant

effect on students of lower-class background. Those who were admitted to the selective 5-year realskola from working-class homes developed better cognitive skills than those of the same background who were in undifferentiated grades 5 and 6, or who spent these two grades in "minus-select" classes. The undifferentiated classes tended to develop more favourably than did the "minus-select" ones. By and large, the differences between the various differentiation milieus tended to decrease and even disappear if allowance was made (as was the case in all comparisons) for social classes and initial IQ differences. The investigation seemed to show that organisational differentiation does not have the great effect on the cognitive outcomes of instruction that some had claimed in the debate.

Dahllöf (1971) has subjected the Stockholm survey to a critical analysis from a methodological point of view. In the first place, he showed that if one takes into consideration the direction in which the (mostly non-significant) differences go, the knowledge increments in the "plus-select" classes tend to be larger than in the "minus-select" ones, something which Svensson (1962) also emphasised. A major criticism that Dahllöf levels against the investigation is that it does not take into account the "process variables", i.e. the variables that characterise the teaching-learning process in the classroom. Thus, the amount of instructional exposure in the subject areas included in the comparisons was not considered in spite of the fact that it varied between the school types. Finally, he questioned the adequacy of the achievement tests employed. These were originally devised for a representative population of fourth-graders. Several tests displayed marked "ceiling effects", that is they did not differentiate sufficiently among the most able students and this, of course, tended to lower the average score among the students in the "plus-select" classes. This effect was seen particularly in grade 6.

II. THE IMPACT OF GEOGRAPHICAL ORIGIN, SOCIAL CLASS AND HOME BACKGROUND

1. Selectivity and social class

Selectivity has been, and still is, a predominant feature of all educational systems, particularly if they operate as "dual" systems. Students are selected for academic secondary education

on the basis of some criterion of scholastic ability, such as marks, examinations, and test scores. Secondly, screening of those admitted occurs during the course. Grade-repeating and drop-out, particularly the former, has been and still is in some countries very prevalent. A Royal Commission in England (H.M.S.O., 1954) showed that, in the middle 1950's, more than one-third of the students who after careful scrutiny had been admitted to the grammar school either did not obtain a final certificate or failed to get enough passes. About half of the students in the first five grades of the primary school in France repeat at least one grade (O.E.C.D., 1971b). In France too, in spite of the selection and grade-repeating that occurs in the lycée, about one-third fail in the last grade of the academic secondary school (ib.).

How does the screening process function? To be sure, the screened student body is more homogeneous with regard to scholastic performance and therefore easier to deal with. This in turn makes it possible to attain a higher standard of achievement at the end of the course. However, as has been emphasised earlier, the "efficiency" of a school system must be assessed within the compass of an evaluation strategy in which all students (including those who either were not admitted or who were screened out) are included. We cannot limit ourselves to considering only that part of the educational raw material that is fully processed in accordance with the standard model. We must also take into account the raw material that has remained unprocessed or has not got beyond the semi-processed stage.

It would not be possible here to present a complete conspectus of the vast amount of research that has been directed at the effects of selectivity on educational opportunity. Our purpose should be served well enough by short reference to some of the more representative studies that focus mainly on educational attainment and social class. The follow-up of a representative intake to the grammar school in the United Kingdom (H.M.S.O., 1954) has already been mentioned; to this should be added the regional surveys by Floud et al. (1956) in England and the Fraser study (1959) in Scotland of the relationship between school performances and conditions in the home. Girard (1963) and his associates have conducted surveys on grade-repeating, drop-out, and social background in France. In Germany, Undeutsch (1955 and 1960) and Frommberger (1954) have surveyed grade-repeating. The social factors affecting school attainments have been considered by the

German Bildungskommission in the report on ability and learning edited by Roth (1968). The equality of opportunity aspect of the Swedish school reform stimulated a series of surveys beginning with Boalt (1947) and Husén (1948). The Swedish research until 1966 is reviewed in Husén and Boalt (1968). A background paper on group disparities in educational participation was prepared by the O.E.C.D. (1971) for its policy conference in 1970. Extensive statistics on disparities due to socio-economic background have been collected, particularly with reference to higher education. In what follows, some of the findings of all this research will be presented in two sections, one concerning itself with the relationship between social class and selection for academic education, and the other with the relationship between social class and screening during a given course of study, with particular reference to grade-repeating.

a) Selection for secondary education

A complete survey of all the 11,000 fourth-grade students in the city of Stockholm provided the basis for the follow-up study to which we have already given some attention (Svensson, 1962). Another special study was carried out on the 6,000 students from the North Side who had the choice either of competing for entry into the academic secondary school or proceeding to the terminal classes of the compulsory elementary school. The results of achievement and intelligence tests, school marks and social background information were all available. The categorisation in three socio-economic groups, as developed by the Swedish Bureau of Census, was employed. The distribution of social class among the students who were admitted to the five-year realskola was compared with that for those who continued in the terminal classes of the elementary school (Table 4:4). The difference between the distributions for the upper (professional, managerial, etc.) and the lower group (manual workers) are highly significant. It should be pointed out that a transfer to the academic secondary school had no financial implications for the individual student or his parents. No tuition fees had to be paid, and all the benefits were the same as for the elementary school. The differences between those who transferred and those who continued could be accounted for by a combination of home background (and the motivational factors which go with it) and academic aptitude as measured by school marks equalised by standardised achievement tests.

Table 4:4

Social Class Distribution of Students who were Admitted to the Academic Secondary School after Grade 4 and of those who Continued in the Terminal Classes of the Elementary School

(The entire fourth-grade population on the North Side of the city of Stockholm, spring semester, 1955. n = 5366. Figures in per cent.)

Social class	Number of students continuing in elementary school	Number of students admitted to secondary school
1	10.4	34.3
2	37.6	46.2
3	52.0	19.5
Total	100.0	100.0

Table 4:4 poses two questions, namely: what are the more specific factors that underlie the under-representation of social class 3 students in the secondary academic school? and: what kind of social bias may have gone into the selection procedure? It was clearly worth looking into this more closely, for as many as 43 per cent of the applicants from social class 3 were not accepted into the secondary school while only 32 per cent of class 1 failed in this respect.

Three measures of intellectual performance were available: group intelligence test score, standardised achievement test scores in the three R's, and school marks. Each of these was converted into a nine-point scale with the top 4 per cent of the total population in group 9, the next 7 per cent in group 8, etc. Details about the analysis have been presented elsewhere (O.E.C.D., 1967) and we shall confine ourselves here to relating the intelligence test score level to incidence of application and rejection in the various social classes. The outcome is much the same when the achievement test scores are employed as a criterion of scholastic ability.

Table 4:5

Applicants (in per cent) for Admission to Academic Secondary School, with their Social Class and Ability Level (according to intelligence test score)

Social class	Ability level on stanine scale (intelligence test)								
	9	8	7	6	5	4	3	2	1
1	87	89	82	82	70	58	47	21	14
2	85	77	74	59	47	36	20	13	7
3	66	72	45	40	24	18	8	7	5

Table 4:6

Number of Rejected Applicants to Secondary School (in per cent) by Social Class and Ability Level (according to intelligence test)

Social class	Ability level (intelligence test)								
	9	8	7	6	5	4	3	2	1
1	6	20	18	36	52	69	69	(80)	(100)
2	6	23	33	50	60	68	79	(100)	(75)
3	13	30	31	43	37	61	82	(54)	(100)

In the first place, we note a consistently lower number of applicants from socio-economic class 3 than from classes 1 and 2. The difference is not very great among the 11 per cent most able (levels 9 and 8), but it is striking among students of average or close to average ability. Thus, about two to three times as many from class 1 as from class 3 apply at levels 6 and 5. Considering the low application rate in class 3, one could expect the rejection rate to be lower there than in classes 1 and 2. As can be seen in Table 4:6, this is not the case. The difference in rejection rate tends to be higher among the more able than

among the less able. Thus social handicap operates not only in building up the level of educational aspiration but also in translating the aspiration into action, i.e. by applying for an academic education.

Similar findings were reported by Härnqvist and Grahm (1963) who conducted a comprehensive national survey of three groups of students, in three different choice situations in secondary school: (1) the choice between proceeding to the senior secondary school (gymnasium) or going out to work after completion of the junior secondary school; (2) the choice between different programmes at the beginning of the senior secondary school; and (3) the choice between different tracks or programmes during the two last years in the senior secondary school. The choices were related to student attitudes, school marks, and social background.

In this connection, we shall limit ourselves to the findings pertaining to transfer/non-transfer to the senior secondary school. Table 4:7 shows that transfer differed between various types of urbanised areas where the junior secondary schools were located. It should be noted, however, that the percentages do not reflect differences between students from rural and highly-urbanised areas since the major part of differentiation due to urbanisation had taken place at entry to the junior secondary school.

Table 4:7

Transfer (in per cent) from Junior Secondary to Senior Secondary School by Type of Town

	Boys	Girls
Large towns and university towns	82	68
Large industrial towns	72	46
Old gymnasium towns	69	50
Towns in northern Sweden (Norrland)	61	48

Source: Härnqvist and Grahm, 1963

Table 4:8

Distribution (in per cent) by Social Class and Father's Education of Boys Intending and Not Intending to Enter Senior Secondary School (gymnasium)

	In terminal grade of junior secondary school		In penultimate grade of junior secondary school	
	Intend to enter immediately	Do not intend to enter immediately	Intend to enter immediately	Do not intend to enter immediately
Social class				
1	28	11	53	13
2	48	50	31	47
3	40	32	10	38
No information	4	7	6	3
Total	100	100	100	100
Father's education				
University	10	2	26	2
Senior secondary	11	4	16	7
Junior secondary	12	10	16	13
Elementary	61	76	35	34
No information	6	8	8	6
Total	100	100	100	100

Source: Härnqvist and Grahm, 1963

As can be seen from Table 4:8, transfer is closely related to social class and parental education. The previous pattern among middle and upper-class students was to transfer from the penultimate grade in the junior school to the first grade in the four-year gymnasium, whereas the practice of taking the leaving examination from the junior secondary school before transferring to the senior secondary was an outcome of broadened possibilities for pre-university education for those who attended municipal middle schools.

In view of the fact that transfer from the second highest grade in the junior secondary to the senior secondary school has been the traditional pattern in the social strata from which most senior secondary school students have been drawn, the two columns on the right of Table 4:8 are the most interesting ones. About half the boys who intend to transfer immediately are from social class 1 as compared with only 10 per cent from social class 3. The father's education is also highly correlated with immediate transfer to the senior secondary school.

Correlations were computed between school marks, social status, and education on the one hand and transfer to the senior secondary school on the other. They are given in Table 4:9.

Table 4:9

Correlations between Transfer to Senior Secondary School and Certain Background Factors

	Boys	Girls
Marks	.70	.67
Social class	.48	.48
Father's education	.43	.50
Mother's education	.43	.40

Härnqvist (Härnqvist and Grahm, 1963, p.46) sums up the effect of geographical and social factors affecting the choice of further education in the following words. "The direct effects consist of economic obstacles in the way of continued school attendance, and obstacles in the form of great distances to educational institutions The indirect effects could be associated with differences in the value attached to further education among parents of different social status. Since social classes are geographically unevenly distributed, geographically determined differences may be operating. Still more subtle is the way that consciousness of social status may influence the student's self-appraisal and level of aspiration, thus leading to a choice of more modest types of education, even when intellectual capacity is excellent, and the economic and social barriers are surmountable."

b) Grade-repeating and drop-out

As already suggested, one could hypothesise from the concept of academic ability that grade-repeating would, as would all other selective measures, be correlated with social background. Hence the individual costs of grade-repeating are particularly heavy for students of lower class origin. Boalt (1947), in his survey of an age cohort of Stockholm students who were followed up for ten years, was able to show that screening in terms of grade-repeating and drop-out was indeed correlated with social background, but not to the same extent as selection for secondary education.

The social costs of screening has been the principal reason for concern in countries where grade-repeating has been frequent. Frommberger (1954) conducted a survey of grade-repeaters in West Germany and Undeutsch (1955, 1960) made das Sitzenbleiberelend ("grade-repeating misery") an object of studies and conferences. In France, grade-repeating as early as in the first five years of elementary schooling on average delayed the students by 1.5 school years (O.E.C.D.,1971b) and this increased the operational costs in the primary school by 30 per cent.

Until recently, grade-repeating was standard practice in elementary schools in all European countries and up to 1914 it was apparently quite common in the United States. E.L. Thorndike (1903) questioned its value as an instrument of "individualising" instruction so as to get the majority of the students up to an acceptable standard. It is reasonable to assume that this practice is closely associated with heterogeneity of student enrolment, particularly social heterogeneity. Since the main approach in instruction is the "frontal" one (i.e. the teacher addresses the entire class), the ensuing differences in students' performances can be remedied either by having those who lag behind repeat the class or by setting up some kind of streaming or tracking system (Jackson, 1965).

The French educational system shows how a screening with a built-in social bias can operate as early as at elementary level. In the Background Report of the review of National Policy for Education: France (O.E.C.D., 1972, in press), statistical survey data have been brought together to elucidate enrolment ratios, grade-repeating, drop-outs, and examination ratios as related to social background. This reveals a quite remarkable degree of

grade-repeating - even in the first grade of the école primaire where it hits 35 per cent of the boys and 30 per cent of the girls. The frequencies for the next four grades vary between 18 and 24 per cent. This accounts for the fact that it takes on the average 6 1/2 years to complete the 5-year course. Only 24 per cent of the boys and 27 per cent of the girls complete it in the scheduled time. Thus as many as 21 per cent of the boys are 3-5 years over age when they transfer to the secondary school.

One could expect grade-repeating and ensuing over-age to influence the likelihood of getting into the more attractive streams of secondary education, particularly the lycée. Even there, in spite of the selection that takes place at entry, grade-repeating goes on, affecting 15 per cent of the 6ème and close on a third of those in the terminal class (the baccalauréat year). Girard and Bastide (O.E.C.D., 1971) in 1962 conducted a survey of the students leaving CM2 (the fifth grade of primaire) who should have reached second degré of the secondary school by 1966. 55 per cent of the primary school-leavers entered either a C.E.G. (a secondary school with a general syllabus) or a lycée (with a more academic one). Only 18 per cent were found in the "seconde" five years later.

One of the outcomes of grade-repeating at secondary level as well as during the primary school is a high frequency of over-age in the terminal class, for instance in the lycée. Those who have got there without grade-repeating should be 17, but in fact only a third of the terminal students are of this age or younger, whereas another third are 1 year older than they should be and the final third 2 years over age. The attrition taking place both in the primary and secondary school is socially selective and is another illustration of the role that the school plays in allocating people to various social strata. The social stratification procedure is already effective at the primary stage. According to a survey by Girard et al. (1963), children with the following backgrounds were of normal age, i.e. 11 or under, when they had reached grade 5:

	Per cent
Agricultural workers	27
Farmers	41
Manual workers	36
Clerical staff	48

	Per cent
Junior executives	71
Professionals and industrial entrepreneurs	69
Senior executives	76

The students included in this survey were rated by their teachers as to scholastic ability. 35 per cent of those whose parents were classified as manual workers were rated as "excellent" or "good" as compared with 64 per cent of those with junior executive background. According to another survey conducted by Girard (1953) in the Seine Department, 54 per cent of the children who completed the école primaire had working-class backgrounds. The corresponding figure for the 6ème in the lycée was only 10 per cent. The number of children with professional, civil servant and managerial background in the 5th grade was 3 per cent, whereas in the 6ème they amounted to 57 per cent. By and large, in most Western European industrial countries, the representation of social class 3 (mainly manual workers) in the junior academic secondary school was, before the enrolment explosion and the restructuring of secondary education, around 10 per cent, whereas it accounted for about half the students in the first grades of the primary school. But even after secondary education has become general and the various programmes have begun to be integrated within a more unified system, the "tracking" of the students implies an allocation according to social origin. In the survey conducted by Girard et al. (1963), students with a working-class background accounted for 40 per cent of the entire 6ème population as compared with 12 per cent with a managerial and professional background. But in the selective lycée the former group accounted for 24 per cent and the latter for 30 per cent at the 6ème level. In the primary terminal classes (completing compulsory education) 49 per cent were of working-class origin as compared with 2 per cent with a managerial or professional background.

A British Royal Commission in the 1950's conducted a study on failures, particularly "early leavers", in the grammar schools. The students admitted to these schools had been carefully selected on the basis of the so-called 11+ examinations which allegedly provide a "fair" diagnosis of scholastic ability in 90 per cent of the cases (see, e.g., Vernon, 1957). At the end of the follow-up period, 37 per cent of the total enrolment were regarded as failures by the Committee on one or several of three counts: they

had not completed the five-year course, they had not gained any certificates or they had gained a certificate with less than three passes. The attainments in grammar school were related to performance in the entrance examinations and social background. The results are shown in Table 4:10.

Table 4:10

Failure Rate (in per cent) among British Grammar School Students by Entrance Qualifications and Social Background

Paternal social status	Entrance standing		
	Best third	Middle third	Lowest third
Professional and managerial	10	25	34
Clerical	19	32	42
Semi-skilled workers	38	58	62
Unskilled workers	54	62	76

Source: Early Leaving. London: H.M.S.O., 1954.

The most striking finding in this Table is that among the students who, according to entrance examinations, belong to the top third, four to five times as many working-class children failed as those from a professional or managerial background. This is another indication of the school's role as a social stratifier. Even if a student of lower-class background has qualified for entrance into a school or a programme that is considered to be geared to the needs of children with a privileged background or has traditionally enrolled students from such a background, he apparently has difficulty in remaining in that school or programme.

A Swedish survey (Orring, 1959) illustrates the relationship between social class and screening by grade-repeating. One-fifth of the total national enrolment into the five-year junior secondary school was followed up. The proportion of the original intake that is still enrolled at a certain grade level - and which reflects both grade-repeating and drop-out - could be calculated. 60 per cent of students from socio-economic class 1 (highest)

reached the final grade without delay as compared with 48 per cent in class 3 (lowest). The differences were larger in terms of drop-outs (which during the first three years meant going back to elementary school) than in terms of repeating.

2. Inequalities between geographical areas

National surveys consistently show that in most countries there are disparities between rural and urban areas in the matter of educational participation. The O.E.C.D. (1971) collated a comprehensive set of statistics relating to this situation in its Member countries for its 1970 Conference on Policies for Educational Growth. Data by region were available for 15 countries at two points in time. In at least 12 countries, regional disparities seemed to be of the same order or showed a tendency to wider at the secondary level. The latter case applied, for instance, to Canada, France, and Sweden. Coefficients of variation were used as relative measures of variability between regions or provinces. It was, however, overlooked in this report that the tendency towards an increased participation gap between regions could very well be an artefact of migration from rural to urban areas. Those who migrate have more education than those who remain and this, of course, applies also to their children (Neymark, 1961).

In several countries, though, the picture is not as clear-cut as it used to be, with a diminishing participation rate from big cities, middle-sized cities, small cities, villages and sparsely-populated rural areas (Husén, 1948). In the United States, for instance, one finds the highest participation rates in the urban fringes, while in Denmark it is higher in provincial cities than in the big capital city, Copenhagen.

Douglas (1964) found large differences between regions in the United Kingdom in the availability of grammar school places. Wales had places for 33.5 per cent of an age group of primary school-leavers as compared with 18.9 per cent in the south of England, which had a higher percentage of salaried workers and a higher mean score on the scholastic ability test. When grammar school places were in short supply, middle-class children tended to get the same number of places as they obtained in areas with good supply. It was the lower working-class children who tended to suffer most from the increased competition.

3. The 1970 O.E.C.D. participation survey

As a preparation for the 1970 Conference on Policies for Educational Growth, the O.E.C.D. Secretariat compiled a background study on disparities in educational participation with regard among other things to socio-economic background of students (O.E.C.D., 1971).

Data on socio-economic disparities were available for seven O.E.C.D. countries - Denmark, France, Germany, the Netherlands, Norway, England and the United States. As far as secondary education is concerned, the following statistics illustrate the occurrence of disparities. In France, participation at secondary level is approaching 100 per cent, but great socio-economic disparities exist between the various tracks and programmes. In the collèges d'enseignement général (C.E.G.), children from homes of professionals and executives have participation rates of only 20 to 30 per cent as compared with 60 to 80 per cent in the classical streams of the more-highly regarded lycées. According to a German study reported in "Die höhere Schule", students whose parents were themselves university graduates increased their representation in the 9-year gymnasium from less than 10 per cent at the beginning of the nine-year course to 35 per cent in the graduating class. Workers (not foremen and skilled workers) decreased from 31 to 2 per cent. In the Netherlands, the ratio of admissions among 12-year-olds to the academic secondary schools increased over a five-year period from 45 to 67 per cent in the upper stratum, but only from 4 to 7 per cent in the lower stratum. A study in England by Westergaard and Little (O.E.C.D., 1967) shows that among 11-13-year-old boys born in the late 1930's, 62 per cent with professional and managerial background had been to grammar school as compared with only 7 per cent of those whose parents were unskilled workers. By the age of 17, 43 per cent of the former group and only 1.5 per cent of the latter group were still at grammar school.

The 1971 O.E.C.D. survey contains a section which, country by country, presents the relationship between the socio-economic distribution of university students as compared with the same distribution among male workers. By entering these statistics into a diagram that presents the percentages of participation by student background and composition of the labour force at two points in time one can get a picture of the extent to which

changes in participation in higher education have taken place. The report expresses the caveat that this type of representation does not take into account shifts in social class distribution over time. Since in the more industrialised countries there is a tendency towards an increase in the managerial and professional groups and a decrease in the number of manual workers, the change might seem to widen the gap because of a considerable increase in upper stratum and the slight decrease in the lower one. All the O.E.C.D. 1970 statistics, like most statistics available from other surveys, are limited to participation by the crude index of socio-economic status. In trying to advance explanations for the differences in participation the 1970 report points out: "The relationship between socio-economic factors and school participation may be not so much an economic relationship as one which accounts for differences in life styles and mobility aspirations." (op. cit., p. 80).

4. A Canadian survey

An extensive survey, with the aim of elucidating the school's role in career decisions, has been conducted by Breton (1970 a-b) under the auspices of the Canadian Department of Labor and the Provincial Departments of Education. The general theory behind the study is briefly this: Career decisions taken by students are determined by internalised opportunities, socio-economic circumstances and, not least, by subjective circumstances related to their own values, attitudes and identity feeling. Among the latter factors the most important are those that have to do with the student's having decided whether the course of events is under his own control or under that of someone else or is determined by quite impersonal influences. The "conceptual self-system" is the tool the youngster applies in his career decisions which can be regarded as testings of self-hypotheses. Attitudes towards the self and the future which contribute to moulding career goals are: (1) attitudes towards one's own identity; (2) sense of personal control over future events; (3) anxiety about finding a job; (4) independence in decision-making; (5) vocational competence or preparation for vocational decision-making; and (6) attitudes towards work and achievement.

The general approach in the Breton survey therefore was to relate career decision-making both to objective background factors

and to subjective ones. The background factors were: parental occupational status, parental education, size of community of residence, region of the country, linguistic affiliation, size of family, birth order and problems of authority in family. Ethnic and religious affiliations were excluded.

As has already been said, the survey focused mainly on the school's role in career decision-making. The school as a social system was regarded as probably the "single most important influence on the career developments of adolescents" (op.cit., p.7). Breton points out that one of the primary functions of the school is "to serve as an agency of allocation with respect to the socio-economic structure" (op.cit., p.5). The survey takes into particular account the effects on students' career decisions caused by school organisation (the structure of the curriculum, the number and nature of programmes), the evaluation of students and diversity of opportunity.

A random national sample was taken of 145,817 high-school students from all four grades. The full sample was used for measures of school characteristics based on aggregate student reponses. A weighted sub-sample was used for most of the analyses. All the relationships established between independent and dependent variables were controlled for ability, socio-economic background and language. In studying the effect of background factors and subjective factors on career decisions, Breton used Coleman's Multivariate Index (Coleman, 1966).

The school affects the career decisions through programmes such as "practical" versus "academic", or by designing some programmes as "preparation for post-secondary education" whereas others are "terminal". Since the structure of programmes in the school serves as a means of stratification that, by and large, corresponds to the prestige stratification in society at large, the mobility between programmes, the number of programmes, and thereby the flexibility of offerings, are of great importance.

As could be expected, socio-economic origin was closely related to the aspiration for education. Thus, plans to stay on in high school until graduation were 14 per cent more frequent among students from higher than from lower socio-economic strata. Social class tends to have a much stronger effect on the more able than the less able students as far as the desire to go on to post-secondary education is concerned. Socio-economic status tends to

have a sizeable effect on plans even if attitudes are controlled for in the statistical calculations. Educational plans are strongly associated with parental education. This is more marked in students' plans to enter post-secondary education than with intentions simply to complete high school. Even when parental occupational status and ability were controlled for, the association remained relatively strong.

A very important factor in student career planning is that some programmes are terminal whereas others are structured to prepare for education beyond secondary school. These two programmes are, for the rest, in many cases combined, so that one academic programme is terminal whereas the other is university-preparing. Breton shows that programmes of study are ranked by the students in terms of their attractiveness - for example, the prestige attached to them or the ability they are said to require. The student self-concept which is determined partly by his social background is therefore acting as an intermediate variable that helps to make the curriculum or individual programmes part of the stratification system of the school. Another contribution to this stratification is the teacher expectation as to the kind of students best suited to these more highly-regarded programmes. The academic non-terminal programme had the highest rating among teachers. Multi-programme schools tended to attract more students from the lower socio-economic class than schools that offered only a single academic programme.

5. Home background and school performance

a) Various types of home variables

Extensive survey research conducted during the last few decades has identified a large number of social variables that are associated with educational career. Most of these, however, are distal and not proximal indices of how social background actually works. Social class, for instance, is a very crude over-all background index. It is a composite of economic, status, and qualification measurements. It does not tell us in a concrete way <u>how</u> a particular child from a particular social stratum is treated by his parents or what kinds of psychological processes are acting as barriers against success in education. Hence, most of the research reported in this chapter has to be regarded as an attempt to obtain an over-all descriptive picture and to identify major relevant independent variables.

We are, therefore, far away from the stage when we can begin to analyse causally how the variables act and interact. The vivid debate, for example, that followed the publication of the so-called Coleman report (Coleman, et al., 1966, Mosteller & Moynihan, 1971) shows what difficulties are encountered in, for instance, disentangling the "effects" of home background and school resources in accounting for individual differences in student achievement. In his comments on a series of papers given at a United States Office of Education conference on the effect of the teacher (Office of Education, 1970), Coleman suggests that longitudinal data should be employed to reduce the enormous problem of separating effects due to student and school differences (op. cit., p. 175).

In an article on dimensions of inequality, Tretheway (Fensham, 1970) distinguishes between the following groups of social variables that survey research conducted so far has shown to be more or less correlated with educational opportunity:

1. Family-related variables, such as socio-economic status, income, parental education and parental attitudes towards education.
2. Neighbourhood variables, such as geographical location and the subculture of the neighbourhood community.
3. Ethnic variables, such as levels of education open to or aspired to by different ethnic groups.
4. Religious variables, such as education open to or aspired to by different religious groups.
5. School-related variables, such as school facilities, teacher competence, programmes available.
6. Peer group variables, such as attitudes of age-mates to schooling, teachers and authority.

He could have added sex as one further dimension of inequality, since in most countries there are considerable sex differences in educational participation and these are to the disadvantage of girls.

In the collection of studies edited by Fensham (1970), most of these variables have been investigated in terms of their correlation with access to education and school performance. This grouping of variables can be said to serve the heuristic purpose of showing what the major dimensions of inequalities are. In the

Federal Republic of Germany, the girl who comes from a farm and whose family is Catholic has become proverbial because of her low participation in academic secondary education.

When trying to bring out the implications for future research and policy so far as the influence of the school is concerned, Gagné (OE, 1970) outlines a model of the educational process which, apart from genetic constitution, distinguishes between two types of "input" variables - proximal and distal. The former are defined as "those human actions which transform distal input variables into proximal inputs". The latter comprise home environment, community, peer culture, and school resources. Gagné points out that the major difficulty in interpreting the results of the many surveys that have been published is that "they deal with distal and correlated measures, and fail to use proximal measures" (op. cit., p. 170). This applies to opportunities provided by both the home and the school. Socio-economic status as a measure of home opportunities is such a crude distal measure because it does not provide any close or accurate description of what actually happens with the child in the home, what positive actions are taken by the parents in bringing the child up and preparing or not preparing him for school entry. Similarly, measures of school resources such as laboratory facilities or teacher competence do not tell us very much of "those human actions which transform the raw materials of input into opportunities for learning ... Seldom do we find ... measures of process which are direct, in the sense that they indicate the nature of teacher activities" (ib.).

In commenting upon the United States Office of Education conference at which several of the studies to which Gagné referred were presented, Coleman (OE, 1970) takes the same position. The present data sources do not provide very much information about what kind of specific factors are conducive to changes in student achievement. Coleman also points out that research programmes, if they are to be useful as part of the knowledge basis for policy decisions, should be designed with respect to the actual problems on which these decisions have to be taken. He points out that problems pertaining, for instance, to teacher selection may not be answered within the same research programme as problems related to teacher behaviour in the classroom. The same, it seems to me, applies to problems of establishing greater equality of educational opportunity. For a long time, the policy implications of consistent research findings of social class difference in participation

in secondary and tertiary education were construed as lying mainly in the economic field. Since the most tangible difference between social classes was economic means, the solutions to inequalities in educational participation were therefore sought in providing grants or other instruments of financial support for students who came from backgrounds with low participation rates.

Now, after it has been found that economic steps to equalise opportunities for formal accessibility do not have the desired effect, attention is being drawn to the proximal or process variables - that is, how, exactly, children in the different social strata are brought up and what kind and amount of "preparation" for entry into the regular schools is being provided in the various types of home.

During the 1950's and 60's, many studies and national inquiries in Great Britain attempted to relate both participation and scholastic performance to a wide range of social variables. In this context, reference must be made particularly to Glass (1954), Banks (1955), Floud et al. (1956), Fraser (1959), Halsey (1961), Douglas (1964) and to the reports of surveys carried out by various Royal Commissions, such as Early Leaving (H.M.S.O., 1954), the Crowther Report (H.M.S.O., 1959), the Robbins Report (H.M.S.O., 1965), the Newsom Report (H.M.S.O., 1963) and the Plowden Report (H.M.S.O., 1967). A comprehensive survey of relevant statistics and research findings from all O.E.C.D. Member countries was presented at the earlier-mentioned O.E.C.D. Policy Conference on Educational Growth in 1970.

b) Three major studies

i) The Fraser study

From all the above work, we would here single out the investigation conducted by Elisabeth Fraser, Home Environment and the School (1959), particularly because it was the first major study in which an attempt was made to relate the total effect of the home environment, not just some kind of socio-economic index, to scholastic performance. Nearly all the other investigators, both prior to her study and after, limited themselves to some kind of easily available index of parental occupational status or parental education or to some kind of socio-economic classification (mostly in upper, middle and lower class). No previous study,

therefore, provided such an extensive "coverage" of the home milieu as hers, which also included a series of relevant psychological variables.

The Fraser investigation comprised 408 Aberdeen students who had been transferred from primary schools to 10 different secondary schools and who were followed from the age of 12 1/2 to 13 1/2. Two intelligence tests and one attainment test in English were administered. Home environment was assessed by personal interviews with the parents. Four aspects of the environment were considered in these interviews: (1) cultural (parental education and parental reading habits); (2) material (income, parental occupation, family size, living space); (3) attitudinal (parental attitude, including encouragement, towards the child's educational and vocational career); and (4) the degree of abnormality in home background (for example, the general quality of home, whether or not it was "broken", if the mother went out to work, and so on).

Scaled school marks were used as the main criterion of scholastic achievement. Since the students were spread over 10 schools and, within the schools, were in different streams, steps had to be taken to equalise the marks. This was done over IQ. Each environmental indicator was correlated both with IQ and the criterion of scholastic attainment. Finally, a multiple correlation between all the indicators, IQ and school marks was computed. The findings are shown in Table 4:11.

Since parental occupation was categorised and not scaled a correlation could not be computed between occupational category and IQ and the criterion. Both variables were, however, closely related to parental occupation. The same applied to abnormality in the home background.

It should be noted that parental encouragement (a typical "process variable" for which the quest has been strong in recent years among educational researchers) correlates much higher with both IQ and scholastic attainments than any of the other environmental variables. Later, Dave (1963) and Wolf (1964) have been able to show that psychological variables characterising supporting action by parents correlate very highly with test scores (intelligence and achievement). It should also be noted that all environmental indicators tend to correlate higher with scholastic performance than with IQ, which reflects among other things that they are all loaded with non-cognitive factors. Finally, one

Table 4:11

Correlations between Environmental Indicators on the one hand and IQ and School Marks on the other among Secondary School Students in Aberdeen

Environmental indicator	IQ	Criterion (scaled school marks)
Parental education	.42	.49
Parental book reading	.28	.33
Parental magazine and newspaper reading	.38	.40
Income	.35	.44
Family size	- .40	- .46
Living space	.36	.45
Parental attitude towards education	.30	.39
Parental encouragement	.60	.66
General impression of home	.39	.46
All environmental indicators (multiple correlation)	.69	.75

Source: Fraser, 1959; n = 408.

should observe that indicators of material conditions do not correlate lower than those that measure psychological processes.

Fraser draws the following conclusion: "There is little doubt that if some account were taken of a child's home background when trying to forecast his future scholastic success, this would add to the predictive efficiency of intelligence and other standardised tests" (op. cit., p. 73). However, she stops short of recommending that social indicators should be used as predictors to improve the accuracy of secondary school selection procedures. It is interesting to observe that several psychologists who regard it as part of their professional function to recommend improved techniques for prediction come to realise at a certain point that such improvements can make explicit underlying values that they have not been aware of. They then hesitate to advocate them. In this particular case, the task was to discover how social factors

might operate to handicap children in their educational career. Social handicap, then, was seen as a correlation between performance and social background when inborn intelligence was kept under control. The fact that a crude measure of supporting action on the part of the parents correlated as high as .60 with IQ casts some doubt on the conception of the educability handicap as something related to inherited intelligence (cf. Jensen, 1969).

ii) Australian studies

In the earlier-quoted collection of studies on inequalities in education edited by Fensham (1970), one of the contributors, F.J. Hunt, points out: "Unequal participation in education is probably the most comprehensively surveyed social aspect of education and inequalities have been revealed in every society that has been studied, and in relation to a wide range of other variables" (op. cit., p. 42).

In Australia several surveys have been conducted with the primary aim of elucidating the social determinants of educational inequalities and others have revealed such inequalities as a by-product. Hunt mentions some examples in his contribution, and five relevant empirical studies are presented in subsequent contributions to Fensham's (1970) book. From these sources we learn, for instance, that metropolitan and rural areas differ substantially in participation. A survey in Victoria showed that around 1960, 22 per cent of the metropolitan children remained in the secondary school in the matriculation year as compared with 11 per cent of the rural children. Ethnicity turned out to be another factor of importance. Only 1 per cent of the Australian-born youth had less than 6 years of education as compared with 24 per cent of the immigrated youth. Among the immigrants wide differences were found in terms of completion of secondary schooling. Whereas 20 per cent of British immigrants had completed secondary school, only 6 per cent of immigrants of Greek and 3 per cent of those of Italian background had reached this far (Fensham, 1970). Radford (1962) has carried out a survey that elucidates the relationship between schooling and occupational status of parents. Unskilled and semi-skilled workers, who accounted for 33 per cent of the population, contributed only 8 per cent of the university entrants. The figures were exactly the reverse for the professional and higher administrative occupations.

Another survey was carried out in five secondary schools in the Melbourne area. They were selected in a way that would bring out certain contrasting features with regard to enrolment and resources. Two were independent schools - one a prestige-loaded school with an established tradition of educating distinguished people for public life, another similar but with more modest resources - and the three remaining schools were governmental high schools drawing their students from quite different areas. One of them had dilapidated premises but a "strong corporate spirit" and recruited its students from a "good" area. All of these schools were compared in terms of finance, teacher quality, class size and so on, and, on the basis of a combination of quality measurements, the author arrived at the following conclusion:

"... a child will have the best chance of academic success if he is sent to a major independent school, almost as good a chance if he goes to a well-established government high school in a good area, and a worst chance at a northern or inner suburban high school".

These outcomes reflect to a very high extent the socio-economic differences between the areas of location so it is not possible to establish to what extent the schools themselves had contributed to differences in quality of their end-products. The survey suggests that the "metropolitan schools are merely perpetuating existing inequalities" (Fensham, 1970, p. 82).

iii) A British follow-up study

The Population Investigation Committee in England initiated a study in 1945 that was primarily focused on the maternal care provided to infants. Data collection began in 1946 and in order to secure a representative sample of newborn children it was decided to include all those born during the first week of March that year. Illegitimate and twin children were excluded. To obtain adequate sub-groups, all the children of non-manual workers and farm labourers and only a quarter of the children whose parents were manual workers or self-employed were included. After the initial data had been collected, among other things by means of home interviews with the mothers, it was decided to carry out a follow-up study of the influence of pre-school conditions on subsequent attainments in regular school.

The director of the study, J.W.B. Douglas, published a report on the educational careers of the 1946 group until the age of 15, i.e. until the end of compulsory school attendance (Douglas, 1964). He intends to follow the group for another period long enough to cover its entire career in formal education. The overall objective of the 1964 study was to investigate the extent to which children in England were given the opportunity to develop their abilities to the full. When the 1944 Education Act was passed, equality of educational opportunity was conceived of as something primarily pertaining to secondary education. But Douglas emphasises that primary education should also be considered in this respect.

Most of the information needed for Douglas' follow-up investigation was collected with the help of teachers in the primary and preparatory schools. They provided information relating to:

a) absences from school and reasons for them;

b) children's behaviour in school and attitudes to work;

c) intelligence and achievement test scores at the age of 8 and 11 (82 per cent of the sample had complete records of these);

and

d) parental interest in the child's progress in school work.

The school doctors provided health information, and so did health visitors who once a year paid visits to the homes of the children included in the sample. The latter were also able to collect information on family and home circumstances and on parental educational aspirations. The Local Educational Authorities provided data about the 11+ examinations.

The independent schools were left out of the enquiry into selection for secondary education simply because their students were not part of the competition for places in the state secondary schools. On this account one could expect them to have a lower threshold of admission, and this actually proved to be the case: the 90 per cent range of T scores (where 50 was the mean and 10 the standard deviation) for the grammar schools was 54-68, as compared with 40-66 for the independent schools.

Perhaps the most spectacular feature of this research is the opportunity it gives to investigate the influence on the school career of parental attitudes and encouragement during very early childhood. A series of psychological variables measuring parental attitudes and aspirations were included. Douglas (op. cit., p. 39),with ample justification,makes the statement: "There is much evidence to show that the care of intelligent and understanding parents in the early years gives background and meaning to what is learned" later at school.

As has been said, the mothers' aspirations were assessed by health visitors. The children with mothers who wanted them to go to grammar school got 11 per cent more places than would be expected from test scores alone. On the other hand, children whose mothers wanted them to go to a secondary modern school had no less than 60 per cent fewer places in grammar school than could be predicted from test scores. Another indicator of parental interest in the child's school education was whether the father visited the school to discuss his progress with the teacher. Such interest was shown by 32 per cent of middle-class and 12 per cent of working-class fathers. 40 per cent of the working-class children whose fathers took an interest in their progress went to grammar school, as compared with only 10 per cent of those whose fathers evidenced no such interest.

In the Douglas report, the classification by social status was based on parental social occupation and education. The dividing line lay between non-manual (middle-class) workers and manual workers. This line proved to be "semi-permeable": only 5 per cent moved up and 3 per cent moved down during the long period that the follow-up covered. "Upper middle-class" children were those whose parents had a middle-class background and had gone to a secondary school. A "lower middle-class" background meant that the parents had either a middle-class background or a secondary education. "Upper manual working class" was defined as a milieu where at least one of the parents had a middle-class background or went to secondary school. "Lower manual working class" comprised those cases where both parents had working-class background and had not gone to secondary school. As can be seen from Table 4:12, social class turned out to be closely related to psychological variables conducive to grammar school entrance.

Table 4:12

Transfer to Grammar School by Social Class, Parental Interest and Aspirations

	Middle-class		Manual worker	
	Upper	Lower	Upper	Lower
Interest in child's progress	42%	22%	11%	5%
Desires grammar school place	73%	73%	58%	49%
Late school leaving wished	78%	41%	22%	13%

Source: J.W.B. Douglas, 1964

As mentioned above, the children were given achievement and intelligence tests at the age of 8 and 11 respectively. The differences in average score between social classes increased significantly from 8 to 11.

Leaving aside the children who went to independent schools, 54 per cent of the children from the upper middle-class and 11 per cent from the lower working-class were admitted to grammar schools. Had the independent schools been included, this inequality would have been even more marked. As has been shown in other surveys (see, e.g., Husén and Boalt, 1968), social background is of little or no importance among children who intellectually score at the top; but in the IQ range 110-120 social class strongly affects the chances of being selected for an academic type of secondary education. The more selective the system, the slimmer the chances for lower-class students. Douglas shows that when grammar school places are in short supply, this does not greatly affect the chances of middle-class children being selected; such competition, however, weighs strongly against working-class children. Those who lived in areas with a poor supply of grammar school places got 48 per cent fewer than an equivalent group (in ability) of upper middle-class children.

Whereas most previous studies of social bias in the school system had focused on selection for and in secondary education, Douglas was able to show how it already operates in primary

education. When the children were 10 years old, their teachers were asked to rate them on a five-point scale from "very hard-working" to "lazy". The top rating was given to 26 per cent of the children of upper middle-class, 17 per cent of lower middle, 11 per cent of upper working-class and 7 per cent of lower working-class. The interesting thing here is not whether these ratings were "objective" or not, but the very fact that the teachers perceived the children of various social status differently. Since teachers' judgements are the basis for promotion, grouping practices such as "streaming" and transfer to further education, they become of great importance in the child's educational career.

Middle-class children tended to go to primary schools with a good record for getting places in grammar schools. Thus, 44 per cent of upper middle-class children went to primary schools from which 31 per cent or more went on to grammar schools. The corresponding figure for the lower-class was only 16 per cent. Interestingly enough, the test scores improved from the age of 8 to 11 for children who went to primary schools with a good record for grammar school admission; but they deteriorated for those who went to primary schools with a poor record in this respect. What is even more noteworthy is that those who went to primary schools with a good record (31 per cent or more admitted to grammar school) obtained 20 per cent more places in grammar schools than could be predicted from their test scores. The reverse happened for those who went to schools with a poor record (10 per cent or less admitted). They got 37 per cent fewer places than predicted from their test scores.

A special study was conducted on 491 children who at the age of 8 were already streamed in A- and B- streams and for whom there were complete sets of test scores for the ages of 8 and 11. The annual change of stream was about 2 per cent, which showed that the system by no means was as flexible as those who designed it and the teachers think it is (cf. Jackson, 1965). Children from a working-class background were usually allocated to the B-stream, whereas children with a middle-class background were more frequently allocated to the A-stream than would have been predicted from their respective test scores. Those of mediocre ability who were allocated to the A-stream tended to improve their scores from 8 to 11, which reduced the spread of scores in the A-stream.

The quality of maternal care was also related to streaming and the report shows that conditions of upbringing during pre-school age are highly correlated with the early school career (Table 4:13).

Table 4:13

Number (in per cent) of Children with poor Maternal Care by Stream and Test Score

Intelligence at 8 (T-score)	Upper stream	Lower stream
41-45	-	42
46-48	12	20
49-51	15	36
52-	10	13

Breton (1970b) has shown that the secondary school serves as a social class stratifier by the way it allocates students to different programmes or tracks. The same effect is brought about by place allocations for students who compete for entry to grammar and technical schools. From the upper middle-class 14 times as many went to grammar schools as to technical schools, whereas the ratio for the lower manual working-class was 2:1.

School-leaving age was also related to social background, and Table 4:14 shows how considerably the percentage who left school at the age of 15 (when compulsory school attendance expired) differed between the four social classes.

Table 4:14

Number of School-Leavers (in per cent) by Social Class and Test Score

Test score	Middle class		Manual working class	
	Upper	Lower	Upper	Lower
- 54	36	73	80	89
61 -	1	3	3	13
All secondary school students	17	46	62	77

Douglas sums up his findings on selection for secondary education in the following statement (op. cit., p. 122):

"Comparing children of equal measured ability at eleven, those from upper middle classes get three times as many selective school places as those from the lower manual, more than twice as many as those from upper manual, and one and a half times as many as those from lower middle class."

Professor Glass states in his Introduction to this report (op. cit., p. XIX):

"Beginning with handicaps, in the sense of having poorer physical and cultural environment, the children suffer an intensification of disadvantages, relative to the middle class children, during their primary school years. If they live in poor housing conditions, they may well attend schools with a low record of success at the 11+ examination. Those who are least well cared for find themselves allocated to the lower streams at school and their school performance will tend to conform accordingly."

Follow-up studies over a longer period of time, including pre-school years, are of particular interest if one wants to establish causal relationships between background factors and school attainments. This longitudinal investigation by Douglas is without doubt the most important so far of such studies that have focused on social background and educational opportunity.

Chapter 5

POLICY IMPLICATIONS OF RESEARCH ON EDUCATIONAL ATTAINMENT AND SOCIAL BACKGROUND

INTRODUCTORY OBSERVATIONS

The previous chapters were an attempt to review a selection of the more important investigations that have been made into the relationship between educational opportunity and attainment on the one hand and social background on the other. This chapter focuses on the policy recommendations implicit in the findings reviewed and briefly discusses strategies by which they might be implemented.

Before attempting to formulate specific recommendations, we should, however, briefly examine two principles that have been of pervading importance in our analysis of such concepts as "talent" and "equality of educational opportunity" since these are fundamental to all the policy recommendations we shall be describing later.

1. In dealing with the concept of "ability" in Chapter 2 and the utilisation of talent in Chapter 3, we could not avoid bringing up the heredity-environment controversy. A dogmatic hereditarian view runs counter to the optimistic philosophy that ought to guide every educational endeavour, namely that planned and/or systematic actions, irrespective of whether they go under the label of upbringing and/or of teaching, can bring about considerable and worthwhile changes in children of school age. These changes relate to both the cognitive-intellectual and the affective domains. As we have already seen, research hitherto has focused almost entirely on the question of how much scholastic aptitude can be attributed to heredity and how much to environment. The attitude taken in this book is that educational policy-making must be based on the view that the environmental factors are of overriding importance. Accordingly, the researcher who wants to find out the extent to which scholastic attainments can be modified

by planned action must begin by investigating how modifications can be brought about by environmental influences in general and scholastic ones in particular.

There is yet another special reason why the educational researcher should adopt this strategy. Attempts both in survey and experimental research to study relevant environment influences, such as home background, on cognitive development during pre-school and school age have for a long time been less than satisfactory. Researchers have mainly concentrated on what are now called "frame variables" (the over-all, static socio-economic structure), whereas "process variables", such as mother-child relationship and language training at home, have been neglected or completely avoided because of a lack of appropriate means to measure them. The yardsticks that have been employed are very crude ones; in most cases they have been socio-economic indices, such as parental education or occupational status. Now that researchers have begun to measure process variables, such as family interactions, parental language training and help given to the child to cope with the requirements in the regular school, amazingly high correlations have been obtained between home environment and scholastic performance.

Thus, the more successfully one can measure relevant environmental variables that account for individual differences in school achievement, the greater the proportion of observed scholastic differences that can be attributed to environmental variations. This means that what is left unaccounted for after we have covered as much as possible of what is tangible can be said to be due to "heredity". An educational researcher who, like Jensen (1969), sets out to make a case for heredity begins at the wrong end of the problem.

2. Recent large-scale survey research has accumulated an overwhelming body of evidence to show that both between-student and between-school differences in achievements have to be accounted for by factors that are endemic in the over-all socio-economic structure of society. Thus, in trying to evaluate what is achieved by individual students, schools or school systems, one consistently finds that the major portion of these differences are attributable to out-of-school factors. For a long time it has been almost a professional disease among educators to regard school education as though it operated in a social vacuum and to disregard the incompatibilities between school and society. This attitude

provides a very efficient defence mechanism against demands for educational change that would bring the educational system into line with changes in society at large.

All this said, there is (thankfully) a growing realisation that educational reforms must be co-ordinated with social and economic reforms. Indeed, it is impossible to establish better equality of opportunity in the educational system without its being established previously or simultaneously in the over-all prevailing social system. To give only one, albeit a pretty substantial, quotation in support of this assertion, let me recall a statement made in the working document for the 33rd session of the International Conference on Education in 1971, where the main topic was "The Social Background of Students and their Chance of Success at School". In spelling out the general principles for educational policy, it said (p. 35): With the best will in the world, the education authorities cannot tackle the problems at the root. Unemployment, inadequate pay, housing conditions, malnutrition and lamentable standards of health call for economic and social measures.

In the light of the results of national and international surveys, one has begun to reformulate the liberal conception of equality of educational opportunity. The core of the problem is whether equality should be seen to apply at the starting point or as an end term. To state it more precisely: Do we want to give everybody an equal formal opportunity of access to education, or do we want everybody to perform more equally? The two possible answers to this question will condition somewhat different policies for implementation. If one wants to establish formal equality on entry to the regular educational system and throughout its various stages, then the major goal of educational policy should be to provide free access into a system which, at least during compulsory school age, is structurally unified. If, on the other hand, the goal is to reduce differences in performance, equality in formal treatment is not enough. Differentiated treatment so as to provide compensatory education for the socially disadvantaged pupils will also have to be considered - in other words, treatment should not be equal and the aim should be to establish greater equality in the outcomes of education.

1. SPECIFIC STRATEGIES

Strategies for bringing about greater equality of educational opportunity can be brought to bear at three distinct levels: (a) at pre-school age; (b) on the school as an institution; and (c) during the post-school period, for example through recurrent education. These were discussed at length by the C.E.R.I./O.E.C.D. Strategy Group(1) in its 1970 and 1971 meetings which we hope to see reported in 1972. In the meantime, it is perhaps useful to examine some of their more specific policy implications.

a) Pre-school education

It follows from our reasoning at the beginning of the chapter that pre-school education needs to be moved up on the list of priorities. Steps taken to establish formal equality of opportunity are futile if, as an outcome of substantial differences in social background, the students enter regular school with widely different cultural assets. Recent studies of early childhood experiences and the socialisation of cognitive modes in children, as well as longitudinal studies of intellectual development, have all been confirming the importance of home background in the child's ability to succeed in regular school. Previously, the emphasis was on how cultural deprivation suffered by children from minority or lower-class homes was related to their chances of getting into the formal educational system and succeeding there. More recently, the focus of attention has shifted to the processes that mediate between the individual and his environment, particularly during pre-school age. Relevant illustrations of this are given, for example, by Bernstein's research on language development, by Hess and his associates' work on cultural deprivation, and Bloom and his associates' on the stability of individual differences over various time-spans up to the age of 18.

Realisation of the importance of language development and the communication style at home (i.e. whether it is verbally "restricted" or "elaborated") and its impact on the development

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(1) The C.E.R.I./O.E.C.D. Strategy Group consists of policy-makers and experts from the O.E.C.D. Member countries. Its discussions are focused on educational policies and structures which promote equality of educational opportunity.

of adequate cognitive styles of problem-solving, as well as the modes that have been developed at home for dealing with outside stimuli and with problems, has inspired the demand for nationwide, institutionalised pre-school education in several O.E.C.D. countries, for instance in the Federal Republic of Germany and in Sweden. Limits of cost and time, however, would restrict the availability of such institutions to two years at most before the children enter regular school at the age of 5-7; hence, in the majority of cases, the first three or four years would still have to be spent at home or partly in day nurseries. By the age of 4, however, a considerable proportion (perhaps 50 per cent) of the differences in language skills have already developed. As was shown by Hetzer as long ago as the 1930's, children in Vienna from poor homes at the age of 2 were already lagging several months behind those from more privileged homes in language development.

Thus, in weighing pre-school against regular school education as a means of establishing increased equality, one should not expect pre-school institutions of a purely pedagogical character, like kindergartens, to achieve too much. On the other hand, we have evidence enough to show how important it is for the child to have an opportunity to participate in classes that put particular stress on developing language skills - which are part, after all, of the "hidden middle-class curriculum".

Closely related to systematic provision for pre-school instruction, with or without built-in activities that aim particularly at stimulating culturally deprived children, are attempts by various institutions to broaden such out-of-school experience as the child has had opportunity to acquire. It has repeatedly been found that children who grow up in big cities, and particularly in slum areas, are confined to a surprising extent to the block or the neighbourhood where their families live. This limits the range of cultural experience and depresses the level of ambition. A child who has never even seen the physical plant of an institution of higher learning, who has never visited a library and who does not have even a vague idea of what a theatre or a concert hall might look like, cannot be expected to want to participate in whatever is going on in such institutions.

b) Strategies pertaining to the school as an institution

Of the strategies for achieving improved equality of opportunity that relate mainly to the educational system as such

and challenge certain institutionalised features of the school, Coleman made a useful analysis in a working paper for the second meeting of the C.E.R.I./O.E.C.D. Strategy Group(1). He considered these strategies under three main headings:

i) Removal of selective procedures on admission: Increased access can be achieved by opening up the courses of study to an increased student population without competitive and/or selective procedures of admission. By increasing the number of places and by removing hurdles such as entrance examinations or admission requirements in terms of marks obtained, social bias at the time of admission can be reduced or even removed.

ii) Organisational measures aimed at alleviating and eventually removing rigidities in the structure of the school system: All steps taken to abolish and/or postpone an organisational differentiation in the system contribute to improved equality. Practices such as streaming and tracking during a certain stage tend to be biased against lower-class children - in the first place because the educational aspiration in their homes rarely aims as high as the academic track, and secondly because teachers tend to expect less from these children. There is ample evidence to show that the earlier organisational differentiation takes place the stronger is the social bias that goes into the selection procedure for allocating students to the various tracks.

More specifically, the following strategies pertain to the structure of the educational system:

a) The more flexible the system, i.e. the longer the options are kept open, the higher the degree of equity. By avoiding decisive selection or a forced choice at an early stage in the school career (for instance, by abolishing the selection to the lower academic secondary school after a few years in the elementary school), one can secure a higher degree of participation from less privileged children. The ideal is that entry to the more demanding or "academic" programme could be granted at almost any stage after the student has reached a certain age. Blind alleys in the educational career could thereby be avoided.

(1) Document CERI/SG/71.01(roneotyped).

b) No sharp distinction should be made between a general academic and a vocational programme. Such a distinction is no longer justified by pedagogical and/or economic reasons. In a rapidly changing society, the trend is to merge the two types of programme.

c) The programme at the upper secondary, and particularly at the post-secondary level, should allow for increased flexibility by being divided into "modules" or "packages" that could readily be combined into different career-preparing programmes. The modules or packages could thereby be assigned different points in a vocational career and thus become an integral part of recurrent education.

It is of great importance not to introduce rigid, full-scale programmes and concomitantly different tracks too early in the school career because selection and/or allocation to such programmes or tracks always tends to anticipate future careers.

iii) Teaching-learning strategies to improve instruction for the disadvantaged: Since equality is not now seen as being confined to access to education and its resources but means also greater opportunity to achieve at the same level as those who have grown up under privileged conditions, the teacher's problem is to designate certain groups who need special, and often additional, treatment. The common denominator for such treatment is individualised teaching within such socio-economic groups as have low participation rates and educational attainments in common. We often forget, however, that as educators we are concerned with individual children and that differences within socio-economic groups are usually greater than between the groups themselves. If the goal is increased equality in terms of attainments and performance, and not only in terms of starting opportunities, certain additional measures have to be taken with those who lag behind. These measures mostly mean modification of conventional instruction (such as individual tutoring, small group instruction, continuity of adult contact, modified curriculum content) and better material resources. This

> by no means implies a rigid single-track curriculum. A comprehensive system is in the first place one which provides a flexible structure that tries to meet the needs of children from all walks of life.

The sorting and stratification feature of the school system, both at the primary and secondary level, should be de-emphasised. This means that the teaching and the certification-examination functions of the school should be separated. The school should teach while society should examine. It is not up to the school to be a gate-keeper to vocational careers. It is not a primary function of the school to find out whether the student has reached the competence needed for any particular vocation. This means, then, that the prime requirement for the school is evaluation of its teaching, not of its students.

The school as an institution is in Coleman's words "information-rich but action-poor". One pedagogical implication of this is that docility easily becomes a goal in itself. Another is that premium is put on the ability to observe and to absorb verbalised knowledge, whereas less importance is attached to the ability to be active and to apply absorbed knowledge. In former days, young people were absorbed early into the adult world and had to learn early to assume responsibility. They had to begin supporting themselves after a few years at school and they began to work early with adults at home. Now they are kept outside the adult world in these and other respects, mainly because the adult world and the youth world in our complex society are kept separate by generally accepted institutional arrangements. Much of adult life is something that contemporary youth experiences only at second remove through the mass media. These observations apply also to the school. The reality for which the school allegedly prepares is presented through the printed and spoken word. In spite of fancy talk about "self-activity" and "independent work", it is difficult to avoid the conclusion that the dominant attribute of the school is to communicate reality through abstract-verbal tools. The mastering of these instruments readily becomes an end unto itself. The pupil who masters the forms is rewarded, while the one who can master the practical real-life problems but not the verbal images through which they are seen at school is not.

The verbalistic feature of the school means a handicap for pupils from homes where the code of communication is "restricted" instead of "elaborated". The more a verbally-mediated docility is required, the greater the handicap. Conversely, the more "action-rich" a school is, the greater its chances of bringing its culturally impoverished pupils into the "mainstream".

What can be done to make what goes on in the school more "functional"? The following two measures are proposed, but they would mean a reshaping of the school as an institution.

i) The school must give, particularly to teenagers, an opportunity to partake in meaningful tasks where they have the chance to feel genuinely productive. This can be achieved by giving them responsibility for work that affects the welfare of their fellow human beings. It is only by making contributions to the adult community and by being treated as adults that they will learn adult roles. One could let all young people after the age of 14-15 experience what it means to accept the discipline inherent in sharing with others the responsibility for carrying out major tasks. One should consider letting young people of school age get work practice in labour-intensive service sectors, such as child welfare or care of the sick and the old.

ii) The school should try to exploit the wealth of competence that exists in other public agencies and institutions and in certain private enterprises by bringing it to bear on its instruction. Politicians, writers, administrators in local government and outstanding professionals all comprise an untapped reservoir of experience and talent that could be put to use intermittently in school. Furthermore, teachers could alternate between classrooms and other places of work and thereby become better educators. Theirs is an occupation that is much more conducive than others to isolation and inbreeding.

c) Recurrent education

A system for re-entry into formal education for those who have left it early is already being considered, at least in principle, by several European countries. This so-called "recurrent education" offers far greater possibilities for attaining a high

level of competence for the majority of students than does the dual or parallel system with its fateful finality of early choice or selection. The launching of the idea of "recurrent education" is therefore a major response to the quest for increased flexibility and equality of structure and programmes.

d) Reform of teacher education

Several of the policy recommendations put forward in this chapter imply a reshaping of the conventional role of the teacher and hence of teacher training. One of the most drastic changes that have been brought about by the "education society" and the "education explosion" is in the social role of the teacher - particularly the secondary school teacher who has to deal with teenagers.

The role of the teacher should no longer be confined to imparting a certain amount of knowledge that the pupil is supposed to retain. It should now embrace many educative tasks, emotional as well as intellectual, where the teacher's main job is to guide each individual pupil towards a differentiated set of goals, not to "drop" those who cannot meet uniform demands. Individualisation is not only a method but also a basic attitude towards teaching. It entails the teacher serving not only as an instructor but as a guide and counsellor as well. Thus, the teacher in a highly mobile society has a great responsibility in helping the pupil to approach his future occupation through a series of choices of courses of study.

There are three aspects of reform of teacher education that could bring about greater equality of educational opportunity:

i) It has repeatedly been emphasised, not least by educational sociologists, that school education is characterised by a middle-class orientation prevalent in teachers (see, for example, Charters, 1963). This is attributable largely to the fact that in most industrialised countries teachers, particularly elementary school teachers, come from lower middle-class and upper working-class homes characterised by upward social mobility. The choice of the teaching profession is a symptom of such a mobility. But this middle-class orientation also reflects the character of the school as an institution where pupils are sorted, examined,

certified and helped along to various careers, for this "helping along" is more than likely to be influenced by the expectation of the teacher as to what pupils of various social background can attain.

ii) Teacher training should emphasise more the sociological and less the didactic aspects of school education. As far as the didactic aspects are concerned, greater importance should be attached to individualised methods of instruction that make allowance for individual differences in social background. Part of an individualised attitude towards the teaching task is a "diagnostic" orientation. Instead of spending a considerable time on checking the progress of individual pupils in relation to the rest of the class, the teacher should use this time for following the individual pupils' progress in relation to some absolute standard. Evaluation should therefore assess the efficiency of the teaching and not the relative competence attained by the pupils. Whereas a system that adopts a "frontal approach" (all pupils being required to move at the same pace towards a uniform standard of attainment" tends to be biased against those who have a less-privileged background, an individualised approach should lead to more equality among students in terms of final performance. Educators are beginning to realise that it is not the task of the school to contribute to increased individual differences in attainment by using various selective measures, but to bring out the potential of each individual pupil.

iii) The teaching cadre should be diversified in the sense that people other than certified teachers should be enlisted for classroom work. It would be advantageous if students while still in their teacher-training colleges could learn to collaborate with parents (e.g. housewives) who could come in and do part-time work - not only clerical and administrative chores but also actual teaching in small groups or by tutoring individual students. In addition to such assistance from more regular "para-professionals", one also has in mind as already mentioned, that people of some achievement in the surrounding community should come to the colleges from time to time and

give expression to their experience in their various fields of work. This would counteract the isolation and the one-sided orientation towards didactic problems that has characterised teacher-training for so long.

2. THE NEED FOR A "SYSTEMS APPROACH"

The objective of increased equality of opportunity as well as of performance cannot be achieved without concerted efforts on the part of those formulating policies for the community - including the family and taxation - as well as for education.

Quite a lot of the technology stemming from recent advances in the natural sciences has been applied in a "fragmented" form without consideration of the total situation. This is why many productive gains and improvements of standards of living have been bought at the price of seriously upsetting the equilibrium of the ecological system. The same problem is now being encountered with "social technology" based upon the progressively specialised social sciences. The majority of major public issues cuts across disciplinary and administrative borderlines. However, because of the general inability, or even refusal, to realise that big social issues are, therefore, "systems problems" whose solutions require the co-ordinated efforts of many experts and several administrative agencies, essentials of "major reforms" sometimes never get further than the paper on which they are written.

Thus, compensatory education alone does not work. The huge resources spent in the United States on the Head Start programme to give children from underprivileged homes stimulating and individualised experiences before entering regular school is one example of a non-systems approach. A few hours per week of stimulating adult contact has, as shown by the evaluation of the programme, little or no effect for slum children unless large-scale and vigorous action is simultaneously taken to deal with other causes of cultural poverty, such as unemployment and substandard housing.

What is needed at the policy-making level is a group of broadly-oriented social scientists who are willing to take a cross-disciplinary look at issues. Such groups should take the systems approach that must precede any measures to produce suitable strategies for the treatment of the identified problems. So far, only the military has run central co-ordinating bodies of this type. Systems approaches should apply both to the planning and the executive stages of major educational and/or social reforms.

REFERENCES

AEBLI, H. (1968). "Die geistige Entwicklung als Funktion von Anlage, Reifung, Umwelt- und Erziehungsbedingungen". In H. Roth (Ed.) Begabung und Lernen. Stuttgart: Klett, 151-191.

ANASTASI, A. (1948). "The Nature of Psychological 'Traits'". In Psychological Review, 55, 127-138.

ANASTASI, A. (1958). Differential Psychology: Individual and Group Differences in Behavior. New York: Macmillan.

ARNOLD, W. (1968). "Bildungswilligkeit der Eltern im Hinblick auf ihre Kinder". In H. Roth (Ed.) Begabung und Lernen. Stuttgart: Klett, 357-375.

BAIRD, L.L. & HOLLAND, J.L. (1968). The Flow of High School Students to Schools, Colleges, and Jobs. American College Testing Program, Iowa City, Iowa Research and Development Division. ACT Research Reports No. 26, June 1968.

BANKS, O. (1955). "Parity and Prestige in English Education". Routledge and Kegan Paul, London.

BEREDAY, G.Z.F. & LAUWERYS, J.A. (Eds.) (1962). "The Gifted Child." The Year Book of Education 24, 1962.

BERNSTEIN, B. (1961). "Social Structure, Language and Learning". In Educational Research 3:3, June 1961, 163-176.

BLOCK, J.H. (Ed.) (1971). Mastery Learning: Theory and Practice. New York: Holt, Rinehart and Winston, Inc.

BLOOM, B.S. (1964). Stability and Change in Human Characteristics. New York: John Wiley and Sons.

BLOOM, B.S. et al. (1965). Compensatory Education for Cultural Deprivation. Based on working papers contributed by participants in the Research Conference on Educational and Cultural Deprivation, Chicago, 1964. New York: Holt.

BLOOM, B.S. (1971). "Mastery Learning" in J.H. Block: Mastery Learning: Theory and Practice. New York: Holt, Rinehart and Winston Inc., 47-63.

BOALT, G. (1947). Skolutbildning och skolresultat för barn ur olika samhällsgrupper i Stockholm. Stockholm: Norstedt.

BORG, W.R. (1965). "Ability Grouping in the Public Schools". In Journal of Experimental Education 34:2, 1-97.

BOURDIEU, P. (1967). "Systèmes d'enseignement et systèmes de pensée". In Revue internationale des sciences sociales, XIX, 3, pp. 367-388.

BOURDIEU, P. & PASSERON, J.C. (1971). Die Illusion der Chancengleichheit. Stuttgart: Klett.

BRETON, R. & Mc DONALD, J.C. (1967). Career Decisions of Canadian Youth. A Compilation of Basic Data. Ottawa: Department of Manpower and Immigration.

BRETON, R. (1970). Social and Academic Factors in the Career Decisions of Canadian Youth. Part I and II. Ottawa: Department of Manpower and Immigration.

BRETON, R. (1970a). Social and Academic Factors in the Career Decisions of Canadian Youth. Part III, IV and V. Ottawa: Department of Manpower and Immigration.

BRETON, R. (1970b). "Academic Stratification in Secondary Schools and the Educational Plans of Students". In Review of Canadian Sociology and Anthropology Association, 7:1, 17-34.

BUCKINGHAM, B.R. (1921). "Intelligence and its Measurement: A Symposium". Journal of Educational Psychology, May 1921, XII, 271-275.

BURT, C. (1958). "The Inheritance of Mental Ability". American Psychologist, January 1958. Vol. 13, 1-15.

BURT, C. (1966). "The Genetic Determination of Differences in Intelligence". In Brit.J. Psychology, 1966, LVII, 137-153.

BURT, C. (1970). "The Mental Differences between Children". In Cox, C.B. and Dyson, A.E. (Eds.) 1970, Black Paper Two: The Crisis in Ed. London: The Critical Quarterly Society, 16-25.

CHARTERS, W.W. Jr. (1963). "The Social Background of Teaching". In: N.L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand McNally & Co., 715-813.

C.E.E.B.. College Entrance Examination Board (1960). The Search for Talent. College Admission 7. New York.

COLEMAN, J.S. (1961). The Adolescent Society: The Social Life of the Teenage and Its Impact on Education. Glencoe: The Free Press.

COLEMAN, J.S. et al. (1966). Equality of Educational Opportunity. Washington: U.S. Government Printing Office.

COLEMAN, J.S. (1966). "Equal Schools or Equal Students?" The Public Interest. Summer 1966, No. 4, 70-75.

COLEMAN, J.S. (1967). "Toward Open Schools". The Public Interest. Summer 1967, No. 4, 20-27.

COLEMAN, J.S. (1968). "The Concept of Equality of Educational Opportunity". Harvard Educational Review. Winter 1968, 38:1, 7-37.

CONANT, J.B. (1959). The American High School Today. New York: McGraw-Hill.

COX, C.B. & DYSON, A.E. (Eds.) (1969). Fight for Education: A Black Paper. London: The Critical Quarterly Society, March 1969.

COX, C.B. & DYSON, A.E. (Eds.) (1970). Black Paper Two: The Crisis in Education. London: The Critical Quarterly Society, October 1970.

CREMIN, L. (1970). American Education. The Colonial Experience 1607-1783. New York: Harper & Row.

DAHLLÖF, U. (1971) Ability Grouping, Content Validity and Curriculum Process Analysis. New York: Teachers College Press.

DAVE, R.H. (1963). The Identification and Measurement of Environmental Process Variables Related to Educational Achievement. University of Chicago: Unpublished Doctoral Dissertation.

Deutscher Bildungsrat (1970). Strukturplan für das Bildungswesen. Empfehlungen der Bildungskommission. Bonn: Bundesdruckerei.

DOBZHANSKY, T. (1967). The Biology of Ultimate Concern. New York: The New American Library.

DOBZHANSKY, T. (1968). "On Genetics, Sociology, and Politics". In Perspectives in Biology and Medicine, Summer 1968, 544-554.

DOUGLAS, J.W.B. (1964). The Home and the School. London: Macgibbon & Kee.

DUNCAN, O.D. (1952). "Is the Intelligence of the General Population Declining?" American Sociological Review, 17:4, 401-407.

DUNCAN, O.D. (1968) et.al. Socio-economic Background and Occupational Achievements. Project No.5-0074(EO-191). U.S. Dept. of Health, Education and Welfare, Office of Education, Bureau of Research.

DUNN, L.C. & DOBZHANSKY, T. (1956). Heredity, Race and Society. New York: The New American Library, a Mento Book.

DYER, H.S. (1970). "Toward Objective Criteria of Professional Accountability in the Schools of New York City". Journal of Phi Delta Kappa, Phi Delta Kappa. Dec. 1970, I-II: 4, 206-211.

DYER, H.S. (1968). "School Factors and Equal Educational Opportunity". Harvard Educational Review, Winter 1968, 38:1, 38-56.

EKSTROM, R.B. (1959). Experimental Studies of Homogeneous Grouping. A Review of the Literature. Princeton: Educational Testing Service.

EKMAN, G. (1949). "Om uppskattningen av begåvningsreservens storlek". In Pedagogisk tidskrift, 1949: 7-8, 125-150.

EKMAN, G. (1951)."Skolformer och begåvningsfördelning". In Pedagogisk tidskrift, 1951:1, 15-37.

ELIASSON, T. & HÖGLUND, B. (1971). Vuxenutbildning i Sverige: En strukturell översikt. Report No. 54, Stockholm School of Education. Stockholm: Utbildningsdepartementet (Ministry of Education).

ELMGREN, J. (1952). School and Psychology. A Report on the Research Work of the 1946 School Commission, 1948:27, Stockholm.

ERLENMEYER-KIMLING, L. & JARVIK, L.F. (1963). "Genetics and Intelligence: A Review". In Science, 1963, Vol. 142: 1477-1479.

E.T.S. Educational Testing Service, 1956-57. Background Factors Relating to College Plans and College Enrolment Among Public High School Students. Princeton: Educational Testing Service, 1957.

FENSHAM, P.J. (Ed.) (1970). Rights and Inequality in Australian Education. Melbourne: Cheshire Ltd.

FISCHER, J.H. (1970). "Who Needs Schools?" Saturday Review. 19th September, 1970, 78-91.

FLANAGAN, J.C. et al. (1962). Design for a Study of American Youth. Boston, Houghton Mifflin Cie.

FLANAGAN, J.E. et al. (1964). The American High School Student. Co-operative Research Project No. 635, United States Office of Education.

FLOUD, J.E. et al. (1956). Social Class and Educational Opportunity. London: Heinemann.

FRASER, E. (1959). Home Environment and the School. London: University of London Press Ltd.

FROMMBERGER, H. (1954). Das Sitzenbleiberproblem: Untersuchungen ueber das Versagen von Kindern in der Volksschule. Dortmund. Crüwell Verlagsbuchhandlung.

GAGNE, R.M. & GEPHART, W.J. (Eds.) (1968). Learning Research and School Subjects. Itasca, Illinois: F.E. Peacock Publishers, Inc.

GIRARD, A. (1953). "L'orientation et la sélection des enfants d'âge scholaire dans le département de la Seine". In Population, No. 4.

GIRARD, A. & BASTIDE, H. & POURCHER, G. (1963). "National Survey on Sixième Intake and Democratisation of Education". Population No.1, January-March, 1963.

GLAZER, N. (1970). "Are Academic Standards Obsolete?" In Change, November-December, 1970, 38-45.

GLASS, D.V. (Ed.) (1954). Social Mobility in Britain. London: Kegan Paul.

GUILFORD, J.P. (1967). The Nature of Human Intelligence. New York: McGraw-Hill Book Co.

GUINAGH, B.J. (1971). "An Examination of Jensen's View of Intelligence". Paper presented 4th February, 1971, at the Annual Meeting of the American Educational Research Association.

HALSEY, A.H. (Ed.) (1961). Ability and Educational Opportunity. Paris, O.E.C.D.

HANSEN, E.J. (1971). Ungdom og uddannelse: De 14-20 åriges uddannelsessituation, 1965, Vol. II. Copenhagen: Teknisk Forlag.

HÄRNQVIST, K. (1958). "Beräkning av reserver för högre utbildning". In Reserverna för högre utbildning. 1955 års universitetsutredning. Stockholm: Statens offentliga utredningar 1958:II. Stockholm: Government Printing Office.

HÄRNQVIST, K. (1959). "Intelligensutveckling och skolresultat". Pedagogisk forskning, 2, 57-69.

HÄRNQVIST, K. (1966). "Social Factors and Educational Choice: A Preliminary Study of Some Effects of the Swedish School Reform". In International Journal of Educational Sciences, Vol. 1:2, 87-102.

HÄRNQVIST, K. & GRAHM, Å. (1963). Vägen genom gymnasiet. Elevernas syn på valsituationer och studieformer. 1960 års gymnasieutredning, Vol. 1. Stockholm: Govern. Printing Office.

Harvard Educational Review, Reprint Series No. 2, 1969. "Environment Heredity, and Intelligence". Cambridge, Massachusetts.

van HEEK, F. (1968). Het Verborgen Talent, Meppel: van Gorcum.

HENMON, V.A.C. (1921). "Intelligence and its Measurement: A Symposium". Journal of Educational Psychology, April 1921, XII: 4, 195-210.

HENRY, J. (1963). Culture against Man. New York, Random House.

HESS, R.D. & SHIPMAN, V.C. (1965). "Early Experience and the Socialization of Cognitive Modes in Children". Child Development, 1965, 36, 869-886.

H.M.S.O. (1954). Early Leaving: A Report of the Central Advisory Council for Education (England). London: Her Majesty's Stationery Office.

H.M.S.O. (1959). Crowther Report. A Report of the Central Advisory Council for Education (England), Vol. I-II. London: Her Majesty's Stationery Office.

H.M.S.O. (1963). Half our Future. (Newsom Report). London: Her Majesty's Stationery Office.

H.M.S.O. (1965). Higher Education. Report and Annexes I to V. (Robbins Report). London: Her Majesty's Stationery Office.

H.M.S.O. (1967). Children and Their Primary Schools: A Report of the Central Advisory Council for Education (England), Vol. I-II. (Plowden Report). London: Her Majesty's Stationery Office.

HOLLAND, J.L. & LUTZ, S.W. (1967). Predicting a Student's Vocational Choice. ACT Research Reports, No. 18, March 1967.

HOLLAND, J.L. & RICHARDS Jr., J.M. (1966). Academic and Non-Academic Accomplishment in a Representative Sample Taken from a Population of 612,000. ACT Research Reports, No. 12, May 1966.

HOLLAND, J.L. & LUTZ, S.W. (1968). "The Predictive Value of a Student's Choice of Vocation". Personnel and Guidance Journal, January 1968, 46:5, 428-436.

HOLLAND, J.L. & NICHOLS, R.C. (1964). "Prediction of Academic and Extra-Curricular Achievement in College". Journal of Educational Psychology, 1964, 55:1, 55-65.

HOLLAND, J.L. & ASTIN, A.W. (1962). The Need for Redefining "Talent" and "Talent Loss". The Journal of Higher Education, February 1962, XXXIII:2, 77-82.

HUSÉN, T. (1946). "Intelligenskrav på olika skolutbildningsstadier" Skola och samhälle, 1946:1, 1-23.

HUSÉN, T. (1947). "Begåvningsurvalet och de högre skolorna: En undersökning rörande rekryteringen till de högre skolorna från de olika tättortsgrupperna". Folkskolan, Svensk lärartidning, I, 1947:4, 124-137.

HUSÉN, T. (1948). Begåvning och miljö. Stockholm: Almqvist & Wiksell.

HUSÉN, T. (1950). Testresultatens prognosvärde. Stockholm: Gebers.

HUSÉN, T. & HENRYSSON, S. (1959). Differentiation and Guidance in the Comprehensive School. Stockholm: Almqvist & Wiksell.

HUSÉN, T. (1959). Psychological Twin Research, A Methodological Study. Stockholm: Almqvist & Wiksell.

HUSÉN, T. (1960). "Abilities of Twins". Scandinavian Journal of Psychology, Vol. 1. 1960, 125-135.

HUSÉN, T. (1961). "Educational Structure and the Development of Ability". In Ability and Educational Opportunity, 113-134. Ed. A.H. Halsey, Paris: O.E.C.D.

HUSÉN, T. (1962). Problems of Differentiation in Swedish Compulsory Schooling. Stockholm: Norstedt, Scandinavian University Books.

HUSÉN, T. (1963). "Intra-Pair Similarities in the School Achievements of Twins". Scandinavian Journal of Psychology, 4, 1963, 108-114.

HUSÉN, T. (ed.) (1967). International Study of Achievement in Mathematics: A Comparison of Twelve Countries. Vol. I-II. New York: John Wiley & Sons.

HUSÉN, T. (1968). "Life-Long Learning in the Educative Society". In International Review of Applied Psychology, Vol. 17:2, 87-99.

HUSÉN, T. (1969). Talent, Opportunity and Career. Stockholm: Almqvist & Wiksell.

HUSÉN, T. (1970). "Varför lyckas vi olika med utbildning"? Folkuniversitetet, Vol. 22:3, May 1970, 10-19.

HUSÉN, T. (1971). "The Comprehensive-Versus-Selective School Issue". In International Review of Education, Vol. 17:1, 1971, 3-10. Hamburg: Unesco Institute for Education.

HUSÉN, T. (1971a). Present Trends and Future Developments in Education: A European Perspective. Occasional Papers No. 8. Toronto: The Ontario Institute for Studies in Education.

HUSÉN, T. & BOALT, G. (1968). Educational Research and Educational Change: The Case of Sweden. Stockholm: Almqvist & Wiksell.

INGENKAMP, K. (1968). "Möglichkeiten und Grenzen des Lehrerurteils und der Schultests". In H. Roth (Ed.) Begabung und Lernen, 407-432. Stuttgart: Klett.

JACKSON, B. (1965). Streaming, an Educational System in Miniature. London: Routledge, Kegan & Paul.

JACKSON, B. & MARSDEN, D. (1968). Education and the Working Class. London: Routledge, Kegan & Paul.

JENSEN, A.R. (1969). "How Much Can We Boost IQ and Scholastic Achievement?" In Environment, Heredity and Intelligence, Reprint Series No. 2, Harvard Educational Review, 1-123.

JENSEN, A.R. (1971). Genetics, Educability, and Subpopulation Differences. Paper presented to the XVIIth Intern. Congress of Applied Psych. in Liège, 25th-30th July, 1971 (in press).

KATZ, I. (1968). "Academic Motivation and Equal Educational Opportunity". Harvard Educational Review, Winter 1968, 38:1, 57-65.

KÖHLER, W. (1933). Psychologische Probleme. Berlin: Springer.

LA CROSSE, E.R. & LEE, P.C. (Ed.) (1970). "The First Six Years of Life: A Report on Current Research and Educational Practice". In Genetic Psychology Monographs, 1970, 82, 161-266.

LEWIN, K. (1935). "The Conflict Between Aristotelian and Galilean Modes of Thought in Contemporary Psychology". In A Dynamic Theory of Personality. New York: McGraw-Hill.

LJUNG, B.-O. & JANSSON, S. (1970). "Recruitment to the Gymnasium in Sweden". In Pedagogisk Forskning, Scandinavian Journal of Educational Research No. 1, 1970, 1-14.

LUNDBERG, G.A. (1939). Foundations of Sociology. New York: Harper & Ross.

MARKLUND, S. (1962). Skolklassens storlek och struktur. Stockholm: Almqvist & Wiksell.

MILLER, G.W. (1970). "Factors in School Achievement and Social Class". In Journal of Educational Psychology, 1970, Vol. 61, 4, 260-269.

MOBERG, S. & QUENSEL, C.E. (1949). Studenternas sociala ursprung, betyg i studentexamen, vidareutbildning, yrkesval m.m. Statens offentliga utredningar, SOU 1949:48. Stockholm: Government printing office.

MOBERG, S. (1951). Vem blev student och vad blev studenten? Statistiska studier rörande fem årgångar svenska studenter under perioden 1910-1943. Lund: University of Lund, Diss.

MOSTELLER, F. & MOYNIHAN, D.P. (Eds.) (1972). On equality of Educational Opportunity. New York: Random House.

MYRDAL, G. (1969). Objectivity in Social Research. The 1967 Wimmer Lecture, St. Vincent College, Latrobe, Pennsylvania. New York: Pantheon Books, Random House.

NEWMAN, H.H., FREEMAN, F.N. & HOLZINGER, K.J. (1937). Twins: A Study of Heredity and Environment. Chicago: The University of Chicago Press.

NEYMARK, E. (1952). "Universitetens och högskolornas rekryteringsreserv". In: Vidgat tillträde till högre studier, ed. by F. Schmidt. Stockholm: Government Printing Office.

NEYMARK, E. (1961). Selektiv rörlighet: flyttningstendenser och yrkesval i relation till utbildning, begåvning och härkomst. Stockholm: Personaladministrativa rådet. Rapport No. 24.

O.E.C.D. (1962). Policy Conference on Economic Growth and Investment in Education. Washington, 16th-20th October, 1961. Paris: O.E.C.D.

O.E.C.D. (1965). Reserves of Mental Abilities in the Burgenland. Vienna: Psycho-Pedagogical Service of Austria. Mimeo.

O.E.C.D. (1967). Social Objectives in Educational Planning. Paris: O.E.C.D.

O.E.C.D. (1971). Group Disparities in Educational Participation and Achievement. Background Studies No. 4 and 10. Conference on Policies for Educational Growth, O.E.C.D., Paris, Vol. IV (1971).

O.E.C.D. (1971a). Equal Educational Opportunity: A Statement of the Problem with Special Reference to Recurrent Education. Paris: O.E.C.D./CERI.

O.E.C.D. (1971b). Reviews of National Policies for Education: France. Paris: O.E.C.D.

O.E.C.D. (1972). Educational Policy and Planning: France (in press).

OEVERMANN, U. (1969). Sprache und Soziale Herkunft: Ein Beitrag zur Analyse schichtenspezifischer Sozialisationsprozesse und ihrer Bedeutung für den Schulerfolg. Berlin: Institut für Bildungsforschung in der Max-Planck Gesellschaft.

O.E. (Office of Education) (1970). Do Teachers Make a Difference? A Report on Recent Research on Pupil Achievement. Washington: Government Printing Office.

ORRING, J. (1959). Flyttning, Kvarsittning och utkuggning i högre skolor i relation till folkskolans betygsättning. Statens offentliga utredningar, SOU 1959:35. Stockholm: Government Printing Office.

ØRUM, B. (1971). Social baggrund, intellektuelt niveau og placering i skolesystemet. Copenhagen: Socialforskningsinstituttet, Studie 20.

PEISERT, H. & DAHRENDORF, R. (1967). Der vorzeitige Abgang vom Gymnasium. Schriftenreihe des Kultusministeriums Baden-Württemberg zur Bildungsforschung, Bildungsplanung, Bildungspolitik. Villingen: Neckarverlag.

PETTIGREW, T.F. (1968). "Race and Equal Educational Opportunity". In Harvard Educational Review, Winter 1968, 38:1, 66-76.

PIDGEON, D.A. (1970). Expectation and Pupil Performance. Stockholm: Almqvist & Wiksell.

POSTLETHWAITE, T.N. (1965). Organisational Differentiation and School Achievement: A Preliminary Study of Mathematics Performance in Different School Systems. Stockholm: Unpublished Fil. Lic. Thesis, University of Stockholm.

POSTLETHWAITE, T.N. (1967). School Organization and Student Achievement. A Study Based on Achievement in Mathematics in Twelve Countries. Stockholm: Almqvist & Wiksell.

QUENSEL, C.E. (1949). "Studenternas sociala rekrytering". Statsvetenskaplig Tidskrift, Bd 42. Lund, Sweden.

REICH, C. (1970). The Greening of America. New York, Random House.

RADFORD, W. (1962). School Leavers in Australia 1959-60. Melbourne: Australian Council for Educational Research.

REUCHLIN, M. (1964). Pupil Guidance: Facts and Problems. Strasbourg: Council for Cultural Co-operation.

RICHARDS, Jr. J.M. & HOLLAND, J.L. (1965). A Factor Analysis of Student "Explanations" of Their Choice of a College, ACT. Research Reports No. 8, October 1965.

RICHARDS, Jr. J.M. & HOLLAND, J.L. & LUTZ, S.W. (1966). The Assessment of Student Accomplishment in College. ACT, Research Reports No. 11, March 1966.

RICHARDS, Jr. J.M. & HOLLAND, J.L. & LUTZ, S.W. (1966). The Prediction of Student Accomplishment in College. ACT, Research Reports No. 13, June 1966.

ROTH, H. (Ed.) (1968). Begäbung und Lernen. Stuttgart: Klett.

SCHACHT-BRELAND, N. (1971). A New Approach to Estimates of Heritability from Twin Data. Research Qualifying Paper, Dept. of Educational Psychology, State University of New York, at Buffalo.

SCHRAG, P. (1970). "End of the Impossible Dream". Saturday Review, 19th September, 1970, 68-96.

SCRIVEN, M. (1970). "The Values of the Academy. Moral Issues for American Education and Educational Research Arising from the Jensen Case". Review of Educational Research, 40:4, 541-549.

SHAYCOFT, M.F. (1967). Project Talent: The High School Years: Growth in Cognitive Skills. United States: American Institutes for Research and School of Education, University of Pittsburgh.

SHULMAN, L.S. (1970). "Reconstruction of Educational Research" Review of Educational Research, 40:3, 371-396.

SJÖSTRAND, W. (1954). Skolreformen i stöpsleven. Stockholm: Natur & Kultur.

SJÖSTRAND, W. (1970). Frihet och jämlikhet: Två grundbegrepp inom 60-talets svenska pedagogik. Stockholm: Gebers.

SJÖSTRAND, W. (1971). Frihet och jämlikhet som pedagogiska grundbegrepp inom västerländsk demokrati (Freedom and Equality as Basic Educational Concepts of Western Democracy). Uppsala: Institute of Education, University of Uppsala, Sweden.

SOU. Sambandet mellau folkskalan och högre skalan; SOU 1944:21. Stockholm, Government Printing Office.

SOU. Betänkande och förslag angående studentsociala stödåtgärder avgivet av 1946 års utredning om den högre undervisningens demokratisering (Student-sociala utredningen). Statens offentliga utredningar, SOU 1948:42. Stockholm: Government Printing Office.

SOU. Betänkande med förslag till riktlinjer för det svenska skolväsendets utveckling avgivet av 1946 års skolkommission. Statens offentliga utredningar, SOU 1948:27. Stockholm: Government Printing Office.

SPEARMAN, C. (1927). The Abilities of Man: Their Nature and Measurement. London: MacMillan.

STERN, W. (1911). Die differentielle Psychologie in ihren methodischen Grundlagen. Leipzig: Barth.

STERN, W. (1920). Die Intelligenz der Kinder und Jugendlichen. Leipzig: Barth.

STERN, W. (1935). Allgemeine Psychologie auf personalistischer Grundlage. Haag: Martinus Nijhoff.

STICE, G., MOLLENKOPF, W.G., TORGERSON, W.S. (1957). Background Factors and College-Going Plans Among High-Aptitude Public High School Seniors. Princeton: Educational Testing Service.

STODDARD, G.D. (1945). The Meaning of Intelligence. New York: MacMillan.

SUSSMAN, L. (1968). "Democratization and Class Segregation in Puerto Rican Schooling: The U.S. Model Transplanted". In Sociology of Education. Vol. 41, Fall 1968, 321-341.

SVENSSON, A. (1971). Relative Achievement. School Performance in Relation to Intelligence, Sex and Home Environment. Stockholm: Almqvist & Wiksell.

SVENSSON, N.-E. (1962). Ability Grouping and Scholastic Achievement. Stockholm: Almqvist & Wiksell.

"A Symposium on Intelligence and its Measurement". The Journal of Educational Psychology, March 1921, XII:3, 123-147.

"A Symposium on Equality of Educational Opportunity". Harvard Educational Review, 1968, 38:1, 1-184.

TERMAN, L.M. (1921). "Intelligence and its Measurement: A Symposium". In The Journal of Educational Psychology, Vol. XII, March 1921, 3:127-133.

TERMAN, L.M. & MERRILL, M.A. (1937). Measuring Intelligence. New York: Hougton Miffling.

THORNDIKE, E.L. (1903). Educational Psychology. New York: The Science Press.

THURSTONE, L.L. (1938). Primary Mental Abilities. Psychometric Monographs No. 1. Chicago: University of Chicago Press.

THURSTONE, L.L. (1946). "Theories of Intelligence". The Scientific Monthly, February 1946.

UNDEUTSCH, O. (1955). "Auslese für und durch die höhere Schule". In Bericht über den 22. Kongress der deutschen Gesellschaft für Psychologie. Göttingen: Hogrefe. 175-196.

UNDEUTSCH, O. (1960). "Die Sexta-Aufnahmeprüfung". In Der Gymnasial-Unterricht, Heft 2. Stuttgart: Klett.

VERNON, P.E. (1950). The Structure of Human Abilities. London: Methuen.

VERNON, P.E. (Ed.) (1957). Secondary School Selection. A British Psychological Society Inquiry. London: Methuen & Co. Ltd.

VERNON, P.E. (1969). Intelligence and Cultural Environment. London: Methuen & Co. Ltd.

WARNER, W.L. & HAVIGHERST, R.J. & LOEB, M.B. (1946). Who Shall Be Educated? The Challenge of Unequal Opportunities. New York, London: Harper.

WECHSLER, D. (1944). The Measurement of Adult Intelligence, 3rd ed. Baltimore: Williams & Wilkins.

WEISS, J. (1970). The Development and Measurement of Home Environmental Models for Personality Characteristics. Paper read at The Annual Meeting of the American Educational Res. Ass., Minneapolis, March 1970, 2-6.

WILSON, A.B. (1968). "Social Class and Equal Educational Opportunity". Harvard Educational Review, Winter 1968, 38:1, 77-84.

WOLF, R.M. (1964). The Identification and Measurement of Environmental Process Variables Related to General Intelligence. University of Chicago: Unpublished doctoral dissertation.

WOLFLE, D. (1954). America's Resources of Specialized Talent. New York: Harper.

YATES, A. & PIDGEON, D.A. (1957). Admission to Grammar Schools. London: Newnes.

YATES, A. (Ed.) (1966). Grouping in Education. Stockholm: Almqvist & Wiksell.

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